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ON
SPINAL CURVATURES,
AND
DEFORMITIES OF THE CHEST & LIMBS.

ON THE
NATURE, PREVENTION, TREATMENT, AND CURE
OF
SPINAL CURVATURES,
AND
DEFORMITIES
OF THE
CHEST AND LIMBS,
WITHOUT ARTIFICIAL SUPPORTS OR ANY MECHANICAL
APPLIANCES.

BY
MRS. GODFREY.

THIRD EDITION,
CAREFULLY REVISED AND ENLARGED.

L O N D O N :
JOHN CHURCHILL, NEW BURLINGTON STREET.

MDCCCLX.

7.17.12

PREFACE TO THE PRESENT EDITION.

SOME years since, at the earnest request of my friends and patients, I endeavoured to bring before the public my plan of treatment for the cure of spinal curvatures and other deformities of the chest and limbs. It would, at that time, have been much more congenial with my taste and feelings to have proceeded with the interesting work of relieving suffering in my own quiet way, as my physical and mental energies were taxed to the utmost of their power, through many hours of each day, in attending to my numerous patients.

Under these circumstances, nothing but a conviction that it was a positive duty would have induced me to comply with the earnest request of my friends; and this conviction was much strengthened by my having a large number of cases of curvatures, and other displacements, which had baffled many other kinds of treatment, but by my system had been perfectly restored.

Now, as then, it would be far more agreeable to

myself to be freed from the task, from which I naturally shrink, of appearing before the public in print; and quietly enjoy the satisfaction of removing disorders of a most distressing nature; and receiving, from hour to hour, the kindest expressions of love and gratitude from my patients. But to indulge this inclination would be unpardonably selfish; for although the plan of treatment I have pursued was perfectly clear from the first to my own mind, I fear it was not made so clear to my readers, as many have been led to think that it consisted merely in manipulation and friction; and, through this mistake, have endeavoured to effect the cure of deformities by such means, with the full impression that they were carrying out my system. Thus, instead of relieving the patient, they have only augmented the evil, and prolonged the suffering.

Indeed, from the result of many attempts which have been made to adhere, most rigidly, to the plan stated in my last publication, I find, even now, that it is quite impossible to convey to another the entire working out of my system; or to explain what my patients call "the power of the peculiar touch;" or to give a definite and appropriate name to the various operations employed: for the power belongs so entirely to the adaptation of every touch to its design, that I now see the hopelessness of endeavouring, by writing, fully to explain it.

My patients frequently ask by what name they are to speak of the treatment to their friends, as they are often called upon by them to explain the nature of the

operations, and know not how to answer their questions. A young lady was recently asked by her medical adviser, what the nature of the treatment was in her case. She replied, "It is impossible to describe." Her friend asked again, "Is it not some kind of friction?" "No." "Shampooing?" "No; it is some kind of manipulation, but not such as that which has been previously performed." "Surely," said the gentleman, "you could describe it, if you would." The lady replied, "Most gladly I would if I could." This is stated to show that the system is something very different from friction.

It is thought by some to be similar to "Ling's movements;" but, in its real principle, it differs as much from that as from any other system. Some medical men, who have seen the mischief which has resulted from improper manipulations, have kindly guarded their patients against this evil, by giving the friends and nurses lessons in the art of rubbing; but whether the fault was in the teacher or pupil, it is impossible to decide; but in cases which have come to me, after months of hard, continued friction, it was evident that the large shoulder had become larger, and the inverted ribs had been more depressed. It is true that manipulation is carefully employed in my treatment, but it is merely to prepare the superior muscles for my own work, the nature of which I shall endeavour, in the succeeding pages, so far to explain, as to ensure for the system the favourable notice of my readers; though, as I have said before, not with the

least hope of teaching, in writing, how the work is to be performed; for experience daily convinces me that this is altogether impossible, as no one case is a type of another.

HUSKISSON STREET, FALKNER SQUARE,

LIVERPOOL; *June 8th*, 1860.

PREFACE TO THE FIRST EDITION.

THE writer of this little work has frequently and earnestly been requested to lay before the public her plan of treatment for spinal curvatures and other deformities of the body; and long ere this would have been prompted, by her desire of lessening in some degree the amount of human suffering, to comply with the request, but for the following reasons—namely, the desire for increased knowledge and experience; the want of time, in consequence of constant attention to patients; and the hope that some one more suitable for so important a work would undertake it. But though many able works on spinal and other deformities have been published, in which she has seen much to admire, and much that has served to confirm her own views of the subject, she has hitherto met with none to which she could refer the reader for a knowledge of the treatment, which, after long experience, she has found to be the most successful, and therefore now ventures to recommend.

To the praise of authorship or profound science she

is conscious of possessing no kind of claim, but has the fullest assurance that what she has written, if duly attended to, will be the means, under Divine Providence, of preventing a large amount of bodily suffering and mental anguish.

April 2d, 1851.

PREFACE TO THE SECOND EDITION.

THE flattering manner in which my work on Spinal Curvature has been received by medical men, and by others, encourages me to publish, in a cheaper form, a second edition, in order that it may have a still wider circulation ; being, by daily experience, more and more deeply impressed with the great importance of doing everything within the compass of human power, to avert the painful and increasing malady of which it treats. It is really astonishing and distressing to see the apathy manifested by many who have the charge of young people, in reference to so direful an affliction.

To every mother I would therefore say, with all the earnestness which the sorrow of heart I have witnessed is calculated to inspire, be most sensibly alive to the first appearance of deviation from the perfect figure. The rising of one shoulder, or of both, in the least degree, or a slight hollow at one side of the waist, may be the forerunner of a life of anguish to your child. To console yourself with the

idea, that every person is more or less crooked, is a great delusion. Unfortunately, it is the case with many ; and because they are able, by artificial means, to conceal it, their nearest friends allow themselves, too often, to overlook the insidious progress of the mischief.

In such a case, however, the heart of the poor sufferer alone well knows its own bitterness.

June, 1854.

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SPINAL CURVATURES,
DEFORMITIES OF THE CHEST,
ETC. ETC.

INTRODUCTION.

THE success of the treatment exemplified in the following cases, although they are only a few of vast numbers equally worthy of attention, will, I trust, be regarded as a decisive testimony to the propriety of my peculiar vocation; for a work of this nature requires not only an anatomical acquaintance with every part of the body, but such a patient perseverance, in personal and very laborious operations, as no surgeon engaged in general practice could have time or inclination to undertake.

Indeed, one reason why so many, who are engaged in orthopædic treatment, fail of the success which they earnestly desire, in the removal of curvatures, etc., is that they depute to unskilful operators the work, which they cannot bring themselves personally to undertake. So strongly indeed am I convinced of this, that I make it my constant rule to attend myself to the practical part of my treatment.

It is my earnest desire, however, that what has

been stated, in reference to the success of my system after other treatment has failed, may not be considered as intended to cast any reflection upon the skill or attention of surgeons, under whom the patients had been previously placed. In all cases which have come under my observation, I have found that everything had been done which skill and ingenuity, under the immediate circumstances, could devise. But it is frequently impossible, when accidents first happen, to ascertain the extent of the mischief, in consequence of the inflammation which immediately succeeds; and, while a fractured limb may be soon restored, and dislocations in most parts of the body easily reduced, many very slight displacements may be produced by a fall or jerk, and take away the power of the limbs, without the possibility at first of discovering where. The displacements at the small openings and at the articulations or sutures may, at the commencement, be very obscure, because the synovial fluid is thin when it first escapes; but, after a time, it becomes more osseous, and it is then that the limbs become powerless.

Hence, unless an accident happens to occur when surgical aid cannot be obtained, I never undertake recent displacements of the limbs. It would indeed be quite contrary to my views to do so, for the pain succeeding recent injuries would render my treatment most trying for a lady. Such cases belong exclusively to surgeons, whose aid can be generally obtained; and my only desire is to afford relief where

surgical treatment has ceased to be of any avail; indeed, every case which has come under my treatment has been of that nature. Though, in cases of spinal curvatures, many have come to me almost from the commencement, and these have been the most speedy in their recovery.

EXPLANATION OF THE TREATMENT.

The power of the muscles, in connection with the tendons and ligaments, to act upon the structure of the bones, was explained in my first work; but another great agency, acting upon every part of the body, was not mentioned: nor did I, at that time, fully comprehend how much of the success of my treatment was owing to the effect produced upon the muscles, by taking off the pressure from the stimulating nerves. Neither do I think that the power of the nervous agency, over the muscular system, has been properly considered by those who have directed their attention to the displacement of the bones and muscles. In many cases, which have come under my observation, their practice has been entirely antagonistical to this theory.

It is not my intention here to enter into the controversy, which has so long puzzled the minds of great anatomists, respecting the nature of the nervous fibres. Upon this subject powerful minds greatly differ. It is enough for my purpose to state, that the hypothesis I have adopted, for the basis of my treatment, is, that

the nerves are the special agency which presides over the whole system of muscles, directing their action, supplying them with nourishment, and giving them the power of sensation,* and thereby guarding them from injury. Moreover, that the muscles, with their connecting tendons and ligaments, are the moving powers of the bones and cartilages. Upon this theory I always conduct my operations, constantly keeping before my mind the fact, that pressure made upon the muscular fibres must in some degree destroy their power, and decrease the size; and that such pressure must impede the circulation of the fluids throughout every part of the body.

A modern writer exactly conveys my meaning, where he beautifully speaks of the fluids as a tide flowing through the whole body. It is therefore obvious that any obstruction to this vital energy must derange the organization of the whole system; and this has been confirmed by many cases, which have been under my treatment, of persons who have been considered hopelessly paralytic: but, on a careful examination, I have discovered slight displacements, in various parts of the body, which were produced, in some instances, by convulsions in infancy, and in others through sudden jerks and falls. A few examples of this kind shall be given to illustrate this statement. At the present time many patients are under my treatment, who had been pronounced cripples for life, but are fast recovering the

* See Monro's 'Nervous System.'

use of their limbs, with an improved state of general health, physical energy, and mental vigour.

The great benefit these patients have derived has made them most desirous to have the principles, which have been worked out so successfully upon them, made more extensively known; and this can only be done by means of a pamphlet, as my plan of treatment is never published in any other way, except as it is communicated through the medium of patients who have been restored. Having thus far endeavoured to give a clear and concise statement of the principles of my treatment, I shall in a subsequent chapter attempt to show the great evil of artificial supports, and every other kind of machinery.

THE CIRCUMSTANCES WHICH FIRST SUGGESTED THIS PLAN OF TREATMENT.

My attention was first directed to this subject by the circumstance, that patients who came to consult my husband for affections of the spine, &c., frequently requested me to be present during their examination, or to examine them myself previously to their seeing him. Among these were some who, suffering greatly from spinal curvature, entreated that something might be attempted for them; and the distress which they manifested awakened in me an anxious concern to discover, if possible, a remedy or relief for so painful a malady. At that time few works had been written on the subject, nor with those I had seen could I altogether

concur ; and, human aid being unattainable, I was led to seek wisdom from God, in order that I might discover the cause of the deformity of those bodies He had so beautifully made ; determining at the same time to study the anatomy of the human frame, in order that I might ascertain the situation of the nerves and muscles. I was much delighted by the discovery that every muscle terminated in a tendon, and each tendon was inserted in a bone, as this discovery gave me a clear idea of the plan of treatment to be adopted, and was the lever of my hope.

At this time a lady came to my husband in a state of great suffering, from a displacement of the joints of the vertebræ ; two being inclined to the right and two to the left, from the fourth to the tenth dorsal. She requested me to examine her ; and with this lady I made my first attempt.

Another lady came soon after, who was labouring under a severe attack of asthma ; she had also an enlargement of the right shoulder, with lateral curvature of the spine, extending from the second to the seventh dorsal vertebra ; the shoulder was elevated three inches above the spinal column. Her mother, seeing the benefit the other patient had received, entreated me to do something for her daughter. I told her it would give me great pleasure, could I ensure success, though it would be my first attempt in a case of that nature ; yet, as her daughter was under my husband's treatment for her other indispositions, I would undertake it. I began with much anxiety, yet with hope

and confidence that no injury could be done by the means to be employed. The young lady's state of health being exceedingly delicate, through the anguish she endured from spasmodic asthma, no exercise could be employed but that which was passive, the operation of which was very soothing and grateful ; and when the fingers were gently but firmly pressed down upon the extreme muscles, she experienced great relief. During the operation over the sternum the breathing became more free. She was allowed to take short walks in the open air, and when at home directed to keep the recumbent position, alternately with sitting on a chair with an inclined back. At the end of nine months she was straight and well, and sufficiently strong to go to a boarding school, her studies having previously been suspended. The termination of this case gave me great encouragement, and induced many more to come under the treatment.

Shortly after I met with a work, on affections of the spine, by Dr. Dodd ; it contained much that was excellent, and great was my delight to find that many of his views exactly coincided with my own ; but, on proceeding through the work, it was evident that his observations had been founded on theory, without his having worked down upon the displaced ribs, or he would not have formed the erroneous hypothesis, that the deformity of the back proceeded from the spine being rotated and not curved. He drew this inference from the circumstance that, when the lumbar vertebræ had deviated from the perpendicular line, hard sub-

stances were to be felt, which he considered were the spinal processes, turned up through the rotation. A case of this kind had been under my care previous to my reading the above work, and on examination my mind had formed the same conclusion; but after two months' treatment, the thickened convexity over the pelvis became sufficiently relaxed to enable me to ascertain that, instead of the spinal processes being turned up, three of the short ribs had been displaced, the points of the two lower ones having deviated from their right direction, and become fixed on the pelvis; the one above was pushed up under the eighth dorsal rib, thereby elevating the ninth, and causing the tenth to form an arch near its articulation. The deviation of the vertebræ had increased the convexity, and caused the lower ribs to rise at their thickest part; and, through their displacement, the muscles were so congested, where the hollow of the waist should be, as to give the appearance of an enlargement of the hip-joint. This, together with the shortening of the leg two inches, had misled the judgment of that great man, the late Mr. Liston, under whose care she had been some months without having attained any benefit; considering it to be a disease of the hip-joint, he had ordered her to wear a high-heeled boot. After this she consulted Sir Astley Cooper, who recommended a support to be made, according to his direction; this not only failed to give relief, but injured the shoulder-blade, which was elevated in consequence of five of the vertebræ having deviated one inch from

the line. When this lady first came to me, the supports and stays were, at my request, laid aside; and, instead of them, I ordered a bodice to be made according to my direction, and a transformation of the other parts of the dress, which is of equal importance when stays are put aside. At the end of six months, her figure was quite perfect. Few cases of this kind are so soon restored; but her health was good, the bones and muscles were equal in strength, and, along with great energy of character, she had a cheerful disposition.

The joy and gratitude of the young lady alluded to, and of her mother, were warmly expressed; and the pleasure and satisfaction it gave me, to find my most sanguine expectations exceeded, led me to pursue the treatment with greater confidence, varying it, however, according to the nature of the case; as the treatment, which would speedily restore one patient, would greatly injure and retard the recovery of another.

During those six months many slight cases came under my care, and were restored. Since that time several works have been written on spinal diseases, many of which contain much that is excellent. I feel truly thankful they are published, and to find that so many eminent surgeons are devoting their attention to so interesting a part of their profession; but nothing I have read exactly meets my own views of the subject, which have been founded upon the work of my own hands. No theory can be correctly made without it.

Soon after this, a lady, twenty-six years of age, was brought to me with an extensive lateral curvature of the spine. Her body was perceived to lose its balance when she was about fourteen years of age. A medical friend was consulted, and she was ordered to the seaside with the view of strengthening her frame, which it did in a slight degree; but the disease was not arrested, and her face began to wear a look of anxiety, from constant pain and uneasiness. The next year another medical gentleman was consulted; and again braeing sea air was recommended, but without the least benefit. Her strength now began to give way. Her medical friend was again consulted, by whom supports were ordered, with frequent visits to the seaside. All this was attended to, yet the disease rapidly increased. The spine had three curves, one above the left shoulder, from the first dorsal to the fifth; on the right side there was another, from the fifth dorsal to the eleventh; and on the left side the curve extended from the first lumbar to the fifth; the first, second, and third dorsal ribs were elevated two inches above the top of the shoulder, the corresponding ribs on the right side being inverted in proportion to the convex on the left. Through the extensive curve at the right shoulder, five of the dorsal ribs were raised up over those which had sunk down, causing the blade of the shoulder to be raised up nearly horizontally over them; thus pushing the head of the bone of the arm, and twisting the arm round, so as to make the first finger rest on

the side, with the hand turned to the front of the body. The supports had pressed against the side of the elevated ribs, and forced them back over the curved joints, creating the appearance of a second spine, raised five inches above the column. The intercostal muscles were exceedingly congested, through the expansion of the ribs. In proportion to the enlargement of the right side, the muscles on the left were attenuated, the ribs inverted, and the point of the shoulder was sunk into a deep hollow. The left lumbar curve had produced a convexity of the short ribs, and displaced them; the points of two were forced up under the angle of the long ribs; the other three were pushed down upon the pelvis; and the muscles between the ribs were so thickened as to feel like a hard bony substance; the ribs were elevated three inches above their natural position. On the right side there was a corresponding hollow, and the angle of the long ribs could not be felt. The intercostal muscles of the short ribs were entirely depressed, so that the whole of the hand could be laid in the hollow without being seen. There was a corresponding displacement of the bones of the chest; on the left side there was a deep hollow, on the right an elevation of four of the ribs; and while the right clavicle was inverted, the left was elevated. The patient, who while standing was of the middle size, appeared when sitting no taller than a child seven years of age. It was, indeed, most painful to see a form, which would have been so lovely, destroyed through the want of

proper treatment at the commencement of the disease ; not that her medical attendants were to be censured, for it was not at that time believed that there could be a remedy. My first impression on examining the back was, that nothing could be done for its improvement ; but, after a little consideration, I was led to hope, from the success of other cases, that a longer period of time being given, with adaptation of treatment, some relief might be afforded.

The promise to make the attempt greatly cheered the patient. Her supports were removed ; but from the use of them the muscles had become so weakened, that, when she came to me the following day without them, she was obliged to be placed in the recumbent position in her carriage. Her debility being so great, the friction and exercises were proceeded with very gradually ; her strength, however, daily increased, and after a month she was able to employ a considerable part of every hour before dinner, and an hour in the evening, in various exercises. At the same time she most diligently and perseveringly attended to every direction given, and to the plan of diet laid down for her. The improvement now, each week, was very striking. By the end of three months the ribs on the right side so approximated, that a bag of skin which would have held a pint of liquid hung loosely down, having lost its elasticity through its having been so long stretched by the expansion of the ribs. The exercises, however, soon brought back its contractile powers, and the muscles

on the left side grew so fast, and so expanded the ribs, that she could feel the point of the shoulder, which she had not done for some years previous. Nor can I describe the joy she felt at this discovery. In proportion to the growth of this side was the diminution of the size of the other ; the shoulder had returned to its right place, allowing room for the arm to fall into its proper position. In three months more the shoulders were both low and sloping, the neck had resumed its natural appearance, the enlargement over the left hip was much lessened, and the spine much stronger ; the middle curve had straightened two inches, and each of the others one inch. In consequence of domestic affliction, she was compelled to return home. After a few months she came back to me again, and continued altogether two years ; at the end of this time the back was nearly straight, each curve being within a quarter of an inch of the perpendicular line ; the flesh of the left side looked like that of a young child, and with a thin covering over her shoulders no deformity could be seen, her figure looking good and natural. For this case to have been complete, she should have been with me one year longer. I have just had the pleasure of seeing this lady, after an absence of four years, and it gave me great satisfaction to find her nearly the same as when she left me.

A variety of cases came under my care during the time this lady was with me, both lateral and angular, and many since, which have been either quite restored

or greatly benefited. But to give them in detail would defeat the design of this little publication, which is, to lay the subject, if possible, before the view of every mother and guardian.

MACHINERY.

Machinery forms no part of my treatment. Much mischief is frequently done, by overstretching the muscles and tendons ; while in some cases, the spinal cord has been so much stretched, as to paralyse the lower extremities ; and where the injury sustained by the patient does not extend thus far, there are few that escape without some degree of external or internal mischief. Very great ingenuity is displayed in the construction of these instruments, and it is with regret that I feel compelled to state that, in cases which have come under my observation, such appliances, however well intended, have not only defeated the object sought, but been productive of incalculable evils.

In some instances violent spasms have succeeded the operations, while in others, they have been followed by consumption ; and it certainly appears to me, that the true nature of spinal curvature cannot be fully understood by those who have adopted this system, otherwise they would surely perceive that the obstructions produced by the ossified cartilages, at the small opening of the interstices of the curved spine and the thick tegument attached to it, would most obviously prevent any stretching process from restoring

the parts to their normal position. Yet it is very natural that those who are suffering from such painful afflictions as spinal curvatures, lameness, or stiff joints, should be easily persuaded to accept any remedy, presented to them, which may seem to promise speedy relief.

A lady, between thirty and forty years of age, who had from the age of seven, suffered from paralysis and an extensive lateral curvature of the spine, came under my care. Through the length of time the disease had existed, much foreign matter had been thrown up, between the greatly expanded ribs and interstices of the spine, with a corresponding depression on the other side. After being under my plan of treatment a few months, her muscles and cartilages, being flexible, yielded more easily than could be expected, the depressed ribs on the left side began to expand, the chest rapidly improved, and the paralysed foot obtained a slight movement. At this stage of progress, she heard of an establishment, near London, where machinery was employed, and hoping to facilitate her recovery, she availed herself of it, and was under treatment twelve months. While there, she experienced much pain and inconvenience through friction by a shampooer, although the proprietor of the establishment gave great attention to this department of the treatment.

But far greater mischief was produced by a piece of machinery called a cage, in which the patient is placed in a sitting posture. A hood is then drawn over the head, to which weights are attached, with a

view of bringing the head forward, and thereby stretch the vertebræ. But this can never be done by mechanical force; because the resistance made against it by the fillings up of the interstices on the convex side of the curve of the spine, whether it be a posterior or lateral curvature, must prevent any power from stretching it in the opposite direction. But as the machine could not act upon the column, it had acted most injuriously upon the ribs, causing a displacement of all the short ribs on both sides; some were jerked up under the angle of the long ones, and others were jerked down into the pelvis; on the right side, the sixth dorsal rib was pushed outward an inch, and the chest was not less injured.

Another instrument had been employed to exercise the left leg; but, through the patient's standing upon the right leg to perform this exercise, a tendon of one of the peronæi had been gradually dislocated from its groove under the malleolus externus, or ankle bone. While enduring all this torture, she began to sigh for my gentle treatment; and on her return to me at the end of twelve months, I was greatly distressed to find so much injury done, without the slightest improvement in other respects; and found that it required several weeks to restore the parts to the improved state, which they had acquired when she left me.

This case is a specimen of many of supposed paralysis through injury of the spinal cord; but from the healthy condition of the spine, and the rapid improvement which resulted from proper treatment, I feel

confident that her want of power originated in a displacement of the left ilium ; and had the case at its commencement been treated with this view, the patient might have been restored in a few weeks, or, at the longest, months : and thus years of suffering would have been prevented, as the cases of this nature subsequently described will confirm.

There is another kind of instrument employed which has also, in some instances, proved highly injurious, and at the same time productive of great suffering, to those who have come under my observation. This consists of a screw, used for the purpose of stretching contracted or stiff joints and limbs. A patient came under my care a short time since, who had been treated in this manner, on account of his being what is called "knock-kneed." He had been screwed repeatedly for many months, but the only result was great pain and disappointment : for the ankles were further apart at the termination of the operations than at the beginning. But the pleasure he derived from the beneficial effects of the system, which was afterwards carried out without any forcing apparatus, was equally great.

There is no necessity whatever for powerful machinery, nor any kind of advantage to be derived from it ; for the most effective exercises are those which are produced by the exertion of the will of the patient, under careful direction.

It is well known, and exemplified by the movements involved in all our actions, that the peculiar mechanism

of muscular motion is, that these muscles receive nerves which communicate with the lesser brain, the cerebro-spinal axis, our motive organ of the will ; and that when the mind wills a movement, that organ, through the nerves, excites those muscles which are to be the means of the particular operation to shorten or swell up. Now, as the muscles cannot bring their fixed extremities nearer to each other without also bringing along with these the bones to which they are attached, the intermediate joint or joints are bent, and motion takes place in the limb or throughout the body. "The purpose of contraction being accomplished, relaxation takes place. Generally the muscles maintain a kind of counteraction, and establish an equilibrium which contributes to maintain the primitive form of the parts."* With such natural machinery directed properly to exert its own power, we had better dispense with every external appliance, and work out our designs by operations better adapted to the perfect laws of our existence.

ARTIFICIAL SUPPORTS.

Closely allied to the use of machinery, if it may not be comprehended under it, is that of artificial supports ; and as artificial supports of every kind are repudiated by me, there ought to be a sufficient reason given for my opposing what appears to many a powerful auxiliary, for the support of the body when it has lost its equi-

* Alex. Walker's 'Nervous System ;' Anatomy and Physiology.

brium. Many eminent surgeons have kindly suggested to me, that it might be of service in connection with my plan of treatment. But, according to the principles upon which my plan is founded, I could not adopt their suggestion, as it would entirely defeat my object, which is to give sufficient strength to enable each part to sustain itself, without any artificial support, which, I submit, is entirely contrary to the natural laws upon which our bodies are constructed ; for the organization of the human body is so exquisitely adapted for the purposes of life, and for obedience to the volitions of our will, that nothing should be allowed to interfere with the perfect freedom which is given to the most minute organic structure.

Very little is yet known of this splendid mechanism, even by vigilant microscopic research ; but enough has been discovered and made known, to assist our reason and guide our conduct.

The structure of the spine, alone, should make one exceedingly cautious in causing a pressure upon any part of the trunk ; since so many nerves, which supply all the moving powers with vital strength, have their origin in the spinal column. To those who are not in the habit of reading anatomical works, it may be interesting to see how this beautiful structure is adapted to give freedom and grace to every movement. The uppermost vertebræ of the neck being fixed behind the centre of gravity of the head, the neck is so far bent forward, as that the last of these vertebræ (which has a firm bearing upon those of the thorax)

may be exactly under the centre of gravity. Those of the thorax are bent backwards, behind the centre of motion, to make room for the parts contained in the thorax; and that they might not be made too weak by this structure, they are formed for less motion than other vertebræ, and those in particular, which are bent furthest from the centre of gravity, have the least motion. The middle vertebræ of the loins are again bent forwards under the centre of gravity, or near it, and from thence they go backwards to the os sacrum, where being fixed to the ossa innominata, behind the centre of gravity, the articulation becomes firm, and without motion; and from thence the ossa innominata are so formed as that their sockets into which the thigh-bones are fixed, where there is a free rotary motion, are exactly under the centre of gravity.*

Hence it is evident that any instrument applied to the body, when the sides are unequal, must produce pressure wherever the plates or straps rest. In another chapter this will be still more clearly seen, when the nervous functions are explained; but one would imagine that, where the construction of the framework of the vertebræ is properly understood, instinct alone ought to be sufficient to prevent the unpardonable blunders which some fall into, in the contrivances they employ for displacements and contractions of the trunk and limbs. Upon this vital error I cannot forbear to speak strongly, for at this time I have many under treatment, who have been unfortunate victims to the

* Cheselden.

want of common sense in persons, who have pretended to understand anatomy and physiology. To describe the instruments, which have been applied to each case, would occupy too large a space here. But while I feel confident that these machines have cost much thought and ingenuity, and have been well intended, I must affirm that every part of these misnamed supports has been so placed, as to produce pressure upon some of the muscles, tendons, ligaments, and nerves; and where the muscular fibres covering the bones have been attenuated, the periosteum of the bones has been irritated, inflamed, and wasted. One case shall be described, to show the direful effects of such treatment.

A young lady was sent to London, two years since, to consult an orthopædic surgeon, who professes to be a great anatomist. She continued under treatment some time, and then returned home, wearing an instrument, which was to be worn day and night, and to be screwed up once a fortnight by her own medical attendant, who performed the operation for some time, but most fortunately detected the mischief that was being produced, and saw the intense pain she was enduring: he therefore ordered that the machine should be laid aside.

Finding now that all hope of relief was gone, she was advised to consult me. On examination, I found the back and chest completely mangled. There had been a plate of iron placed upon the side of the large shoulder nearest the arm, with a view of forcing back with the screw the ribs, which were considerably ele-

vated by an extensive lateral curve. But, instead of diminishing the size of the shoulder, as was intended, the ribs, as they were pressed upon by the plate and screw, were resisted by the curved spine, and consequently were pushed up so as to form a ridge; and as the process of screwing was proceeded with, the ridge was folded back towards the spine, drawing it each time further from the straight line on the right side, and bringing with it the ribs on the left. Moreover, such was the force of the screw, that four of the dorsal ribs were wrenched out of their places, drawing after them the ribs of the chest; so that they were wrapped over each other, causing them to be so depressed and inverted, that the upper dorsal ribs were extended and brought down over those, which had their interstices in the dorsal curve. While all this mischief was going on in the upper part of the back, the whole of the lumbar region was receiving equal injury by innumerable straps: the false ribs were fearfully displaced, some pushed outward, and some inward; while others were turned up towards the diaphragm, displacing that sensitive organ. The whole thoracic region, in fact, was twisted, and the clavicles displaced; which is always the effect of the straps fastened upon the top of the shoulder. The scapula was also elevated; and the neck so shortened, that on the right side it could not be seen.

What has been stated is only, however, a part of the evil, and is merely the external injury; the latent mischief is greater still. It goes on very

insidiously undermining the vital powers, changing the positions of all the internal organs, and entirely taking away what before remained of the centre of gravity.

But, admitting the spine to be rendered straight by any mechanical contrivances or external force, the muscular parts would still be left in the same atonic state as before. The advocates for the adoption of these instruments, therefore, appear to have viewed the spine as a mere assemblage of bones, which were displaced, and consequently required only external aid to replace and retain them in their position, without any reference to the natural moving powers connected with them.*

Is it not surprising that any intelligent mind, with the knowledge of the construction of our bodies, would apply any instruments that could press upon such delicate bones and muscular fibres? Often have I shuddered at the fearful state of the chest, on the removal of straps fastened upon the shoulders. The clavicles have been displaced and depressed, with all the ligamentous tegument connected with them; and the neck has been sunken down and concealed in the cavity produced by the depression of the upper dorsal ribs, and the elevated position on the top of the arm and shoulder-blade.

Yet notwithstanding all this, many persons, from not being aware of any other remedy, are willing to fly to this false refuge as their only hope, and are

* Ward.

persuaded, by their advisers, that they will ultimately find relief. Moreover, as on the first wearing of such instruments, though attended with great pain, they feel a kind of false support, and are deceived by a mistaken sense of strength; and as these false impressions are strengthened by the circumstance that, whenever the instruments are removed, they feel the gradual diminution of muscular strength, which has been going on from day to day; and are led to suppose that this arises from the rapid progress of their malady, because after a short time, they feel quite powerless when the instruments are taken off; they come to the conclusion that they could not exist without them, although the pain they suffer makes their lives miserable. One young lady told me, she always said to her maid, when the apparatus was removed, at the hour of retirement, "Now one more day of misery is gone." Yet as all natural strength and walking power has declined, they are frequently quite alarmed, when they first come under my treatment, at the idea of their artificial supports being taken from them; and request to be allowed to continue their use in connection with my system. To this I never accede; but give the promise that, at the end of one month after the commencement of the operations, if they are disposed to have them, they shall have my full consent. But when, after that time, the instruments have been offered to them, they have all, without one exception, replied, "Nothing should ever induce me to wear them again, now that my physical strength has returned."

ON FRICTION.

To the instances of wrong treatment, censured in some of the foregoing pages, I must add unskilful friction, as another source of mischief, in cases of curvature and deformities arising from contraction. To some, this may appear a false alarm ; but my statement is founded not only on what I have observed, but on the direct testimony of those who have suffered by such treatment. Where there is no deformity, manipulation, percussion, and friction may be employed, with great advantage, by a shampooer, although he may be ignorant of the physiological principles of the structure of the body. In many instances, it greatly soothes and relieves the nervous system, by stimulating and relaxing the muscles. But where deformity exists, no friction should be attempted, but by a person who is well acquainted with the normal direction of the extremities of the nerves, muscles, and their tendons and ligaments.

Numerous cases have been brought to me, in which various parts of the body have been rendered useless through misguided friction, which had pushed off the tendons from the bones they were designed to support. The consequences were, that the connecting ligaments were either too much stretched, or too much relaxed, to embrace the tendons, or keep them in their place ; so that the flexor and extensor muscles, which terminate in them, lost in

some instances a part, and in others the whole, of their power, while the nerves connected with them were bereft of their energy. To which I may add, that the stimulating action upon the muscles may increase the bulk of the enlarged part of the shoulder, instead of diminishing it.

Many now, from a discovery of this effect, have endeavoured to prevent it, by using the hardest friction on the depressed sides. But here they fall into another mistake, through their ignorance of the direction of the muscles; which have, consequently, been pushed forward upon the ribs of the sternum, with the obvious effect of destroying the nervous energy and ligamentous power in that locality. It is now generally known that friction on the spinal column is injurious; but, to prevent such an occurrence, I would seriously warn such as may not have been instructed on the subject, that any friction on the spine may produce inflammation of the sheath of the spinal marrow; and where there is an extensive lumbar curve, it is impossible to say what evil may not arise from a pressure, by which in some cases the short ribs have been pushed up, so as to impede the action of the diaphragm and heart.

OF LING'S MOVEMENTS.

Among the various systems of treatment for the spine, etc., there is one now extensively employed which appears to me much more rational than any of

those which I have mentioned. I refer to the "movement cure;" but in this as in all other modes of treatment, the operators ought not only to be skilful in the direction of the superior layers of muscles, but to understand thoroughly the principles of anatomy and physiology; as otherwise many and very serious diseases may have their origin in the over-stretching of latent fibres, by which the arteries and other blood-vessels may be ruptured. This caution is not given with any view of urging unnecessary objections against new systems; for, to me, it is not only a pleasure but a positive duty to hail any discovery which may at all alleviate suffering. But in a matter of so much importance, I feel myself justified in stating, that a few cases have come under my observation of patients who have suffered from unskilful operators. Indeed, one of the writers upon this system frankly acknowledges, that much harm has been done to it by the extreme enthusiasm of some of its advocates.

CUTTING TENDONS.

The plan of cutting down upon the muscles attached to the spine, in cases of lateral curvature, is I trust quite repudiated in England; and could those who adopted it a few years since have seen the success of my treatment, it might have convinced them that there is a more certain and less painful method of loosening the vertebræ from the contracted muscle, without the suffering and delay occasioned by incision.

For, while the membrane lining the muscle secures it from injury, the patient must be kept in the horizontal position, with arms and shoulders confined with straps and weights during the healing process ; and after all this has been endured, there is not the slightest advantage gained, unless all the obstructions at the interstices, and all the thickened tegument and congested capillaries, between the expanded ribs, could be removed. On the inverted side also, unless the intercostal muscles could be stimulated by the nervous functions giving expansion to the approximated ribs, the convex and concave sides of the curvature must remain precisely the same as before the operation.

While I hope that this barbarous experiment is exploded in this country, the practice is still pursued in others ; though the plan of cutting the tendons for contracted limbs may be entirely avoided by the system I employ. It must be obvious to those who have recourse to the knife, that it can only in recent cases of contraction release the tendons by cutting one only ; for when the contractions have been of long continuance, an immense number of fibres are involved in it, and these must also be relaxed before the affected part can be restored. Moreover, in all cases of this nature I have found, that even those fibres which are supposed to justify the plan of cutting have become relaxed without it, as soon as the other muscles and tendons have been ready to work with them.

I have been induced to make these statements in consequence of a circumstance of a most painful

nature which, a short time since, befel one of my patients ; whose case so strikingly exemplifies what I have advanced upon this subject, that I shall at once lay it before my readers, instead of reserving it for those pages which will be devoted more especially to the description of cases.

A lady, who was under my treatment for curvature of the spine, having had an opportunity of seeing many aggravated cases of deformity of various kinds restored, often expressed her astonishment at the success she witnessed ; and on one occasion, she declared her desire that I should see her nephew, of whom she gave me the following description.

She stated that the little boy, her nephew, was three and a half years old ; that, when he was born, his knees were drawn up upon the abdomen so tightly, that they had never been able to be drawn down ; that his head was of the shape of a cocoa nut ; that he had never taken any notice of any thing or person ; that he had never eaten any solid food, and could only with great difficulty swallow any liquid. Moreover, that he had never expressed any emotional feelings, but appeared an inanimate creature, except when he raised his eyes up into space, and cast them down to the floor in a vacant manner, or patted, as he constantly did, one of his little hands, which was paralysed, with the other. In this melancholy state he had existed from his birth.

After listening to the statement and reflecting upon it, I told the lady that it appeared so hopeless a case,

that I would rather not undertake it. She, however, requested as a favour that the child might be brought for examination, to which I consented. On first seeing him, my impression was that the poor boy would have to exist on in this wretched condition; but, as his spine had projected in consequence of his stooping position, I acceded to the wish of his mamma, to take him under my treatment, for the purpose of endeavouring to restore the vertebræ, and give strength to the attenuated muscles.

With this view only I commenced my operations, and had not proceeded far before it appeared to me desirable to make an attempt to bring down the legs, and restore life, if possible, to the paralysed arm. As the poor little fellow offered no resistance, I found it less difficult to ascertain the position of the muscles, and work down upon them; and I soon had the happiness of seeing symptoms of vitality in each part. This led me to make a careful examination of the head; from which I found that the sutures of the frontal bone had never united after birth, but that the two parts had been wrapped one over the other, and had remained in that state; that the parietal bone had also been pushed down, under the edge of the back part of the frontal; and that the posterior edge of the temporal bone was under the edge of the parietal. Having made these discoveries, I felt a hope that if the bones could be brought to fit into each other, the brain might possibly develop itself. With this idea the operations were directed, and the effect was sur-

prising. The mind soon began to unfold ; the dear little fellow began to talk, and take notice of surrounding objects ; the contractions of the limbs gradually relaxed ; he could use his arm ; and every day gave fresh hope that all his powers would be in a healthy condition.

A medical man, whose little daughter was under my treatment, felt greatly interested in the progress of the case, and frequently waited until the little fellow arrived, to see what progress there was in the development of the mind ; and he often expressed to me his astonishment and delight at the wonderful improvement he discovered from week to week. It was indeed a most pleasing sight to see all the functions of my little patient exerting their power. He knew the name of each person in the room, and gave a right name to every object he saw in the street ; he took great delight in pictures and children's books ; he could walk across the room by the help of the hand, and had just begun to climb a ladder with the assistance of a person behind him. At this time, however, his mother unfortunately left home for a short time ; during which his father, who had been taken ill, was visited by a surgeon, who was not the regular medical attendant of the family, and therefore did not know anything of the child's antecedents. But as he was in the room, the father related what had taken place, and what had been the condition of the child prior to his coming to me. The surgeon replied, that it was certainly an extraordinary case ; but he should advise

that the tendo Achillis should immediately be cut, and the child would walk in a fortnight. The father, upon hearing, as he thought, this good news, sent his aunt to inquire if I would consent to the operation. My reply was, that the operation might give a shock to the nervous system, and could by no means facilitate the walking power, as it did not depend alone upon the tendo achillis, but upon all the contracted parts of the body ; and, therefore, that I must protest against it. I stated, moreover, that it was the certainty of this that had prevented my having such an operation performed ; as my husband, being a surgeon, would have done it without delay, had it been desirable. The child's aunt took back the message, and was most anxious that nothing should interfere with what had been so successfully pursued ; but the surgeon persisted that the child would walk in a fortnight, if he might be allowed to make the experiment. The father, in his anxiety to see his first-born son walk, consented ; the fatal operation was performed, and the heels strapped with splints ; but the legs could not be brought any straighter than they were before the operation. The performance was endured very well by the dear boy, but it was succeeded by convulsions, which continued, at intervals, up to the time I last heard of him ; but there was not the slightest improvement in walking. The surgeon soon after this lost his reason, and probably it was leaving him at the time ; for certainly it did appear an insane act, to cut that one tendon, when the flexors and extensors were

still so much contracted, as to prevent their having sufficient elasticity for walking alone. The last account, which I had of my interesting patient, was, that there had been neither physical nor mental improvement, after he was removed from my treatment.

From what has come under my observation, I feel convinced that time and perseverance would have relaxed every tendon without cutting.

POSITION.

Position requires equal attention and individual direction ; but as the patient's case must be minutely examined before any rules can be laid down, it is not possible to state what attitudes my patients are directed to observe. I may just say, however, that the recumbent posture is never allowed more than a quarter of an hour at a time through the day ; and, then, only after dinner or voluntary exercise.

ON EXERCISE.

A variety of exercises are now employed in the removal of deformities. Many are well adapted for giving strength, vigour, and grace to the body ; but there prevails a great want of discrimination in the appointment of them. Where there is great muscular strength with a perfect figure, powerful exertion will frequently secure its continuance ; though, even under

the most favorable circumstances, I have had an opportunity of seeing that it may be carried to a dangerous excess, and terminate in congestion of the muscular system. But in cases of curvatures, contractions, or displacements, it is impossible that too much care can be used. Nor where the tissues are delicate, or the health debilitated, should any exercise be allowed, unless carefully proportioned to the strength of the subject.

In connection with my system, every exercise is intended to have its own specific action, upon any given part of the body, according to its precise requirement and physical idiosyncrasy; and thus to assist nature to carry out its own laws, by the voluntary dictates of the will. These suggestions, however, are to be observed only when the body is in an abnormal state. My views on the exercises to be employed, where the body is in its normal condition and only requires to be helped to retain it, will be seen in the second part of this little work; where I have treated of the best means of preventing curvature and deformity, in consequence of the serious evils arising from improper exercises, which have come under my observation.

REASONS FOR REPUDIATING VARIOUS MECHANICAL AND ARTIFICIAL APPLIANCES.

Having in the preceding chapters mentioned what appears to me objectionable and injurious in the treat-

ment of curvatures, &c., I shall now proceed to show that my objections are based upon good authority; though, at the same time, I would again express how deeply I regret that means, which have doubtless been most humanely designed and must have been the effort of much thought, should have failed to produce the effect intended. To those who have witnessed such want of success with their patients, it must have been exceedingly painful; while the disappointment must be inexpressibly bitter for those who, after years of protracted suffering borne up by lingering hope, have had at length the discovery forced upon them, that their painful malady was more aggravated at the termination of the treatment than when it commenced. From the experience of such results in numerous patients whom I have examined, I have been led to investigate the subject very fully, with the hope of ascertaining the real cause of failure, and after a most minute and pathological analysis of the different parts which have received injury instead of benefit, I have found that it has been produced either by violent exercise, overstretching by machinery, or pressure on the muscles and nerves by artificial supports; and comparing these pathological observations with the principles of physiology, I saw that these mistakes had arisen in every instance from the violation of its laws.

Wherever straps are fastened upon the top of the shoulder, the acromion at its articulation with the clavicle or collar-bone is displaced, and through this displacement, alone, most distressing consequences

follow ; for, in the locality of these small bones, are lodged the subclavian and other muscles, ligaments, and their attendant nerves, which will not allow the slightest deviation, without considerable injury to other muscles which have their origin in them. The medullary arteries enter the clavicle by one or more small passages ; their relative uses also in the skeleton are to keep the scapula, or shoulder-blade, and consequently all the superior extremities, from falling in and forwards upon the thorax or chest. They are likewise a defence to those large vessels* which are given off from the arch of the aorta. If brevity were not my object in these pages, I might enlarge much more on the great evil which must arise from pressure upon any part of this region. Yet notwithstanding all that is so clearly written upon this subject, I find daily examples of violation of these physical laws. A lady now under my treatment, who through being carried down stairs in a sitting posture when only three weeks old, received an injury in the back which terminated in compound angular and lateral curvature. As soon as practicable, instruments of various kinds, and with every appliance that ingenuity could devise, were most anxiously adopted. At the age of nineteen she came to me. The trunk of the body did not exceed in height that of a child at four years ; although, from the length of the extremities, she ought to have been tall. The straps on the top of the shoulder had pressed down on the articulation of the acromion ; and the clavicle formed a

* Monro.

lever, whereby the shoulder-blade was raised horizontally upon the upper dorsal ribs; and so great was the pressure of the straps on these parts, that it pushed the collar-bone down on the sternal ribs, and the acromion was in its place. The ribs, under the displaced blade-bone were inverted into a curve of three inches, into which the lower angle of the scapula had sunk; the lower dorsal ribs, through the pressure made upon them at the side next the arm, had forced them up upon the upper ribs, and twisted them over the curved spine into a most peculiar shape. It would be in vain to describe the left side, as there was no left side of the back to be seen. The spine had been so far drawn from the perpendicular line, that the ribs of the sternum had taken a considerable part of the place of the left dorsal; and the points of the short ribs were all inclosed in the pelvis. The whole of the chest was fearfully displaced; and the neck was sunk between the shoulders, although she had never been allowed to sit up without having her head supported by an instrument, which was raised up by a screw.

Since she has been under my treatment, every appliance has been laid aside; she has never suspended any of her daily duties or pleasures, and every part is acquiring its proper size, strength, and position: and, what is very remarkable, the spinous processes, which are now all visible, are quite perfect. What has been described, however, gives but a very inadequate idea of the amount of injured health and physical

strength, which this dear lady has sustained by mechanical pressure.

In the 'British Medical Journal' for November 5th, 1859, there is a small list given of spinal appliances and plans of treatment, which have been criticised by Mr. Bishop: such as placing the body in a frame; attempting to press on the vertebræ, as practised by Ambroise Paré; the use of pulleys and straps, division of muscles, the prone position, &c.: and I am happy to find I have so great an authority for the views by which my plan of treatment has always been guided; namely, that the treatment should consist in applying a neutralizing force, equal to that which produced the deformity. But I would submit, that this can be effected more safely, more speedily, with more comfort and much less pain to the patient, without the aid of any mechanical appliance. In the same journal there is a question propounded by Mr. Cornish, who asks, "In what per centage of cases of lateral curvature, it was not necessary to use any apparatus whatever?" To this question it would be very unbecoming in me to attempt a decisive answer; though for the benefit of my non-professional readers, I am glad to state, that out of the hundreds of cases which have been cured under my system, no apparatus has ever been employed, but that in every case the treatment has been directed most strictly in accordance with anatomical principles, which shall be exemplified in the next chapter.

ON THE NERVOUS FUNCTIONS.

The extracts given, to bring forward the principles of the nervous functions, are obviously not intended for professional readers ; but merely for the purpose of further explaining the design of this little work ; which is written, not with a view of setting up my judgment above the judgment of others, but to show the grounds upon which I so strongly repudiate, in my treatment, everything that interferes with the laws of original structure.

It is a well-known fact that nerves are generally lodged in a cellular substance ; and have their course in the interstices of muscles and other active organs, where they are guarded from pressure. But in several parts they are so placed, as if it were intended that they should there suffer the vibratory force of arteries, or the pressure of the contracting fibres of muscles. Moreover, changes produced any way upon the coats of the nerves cannot fail to affect the nervous fibrillæ. The cellular substance may be too full of fluids, or may not supply enough ; the secretion may not be of a due consistence, or it may be abnormally obstructed and collected. The pia or dura mater, in the cranium or spinal canal, or their thesæ, may be too tense, or too lax ; their vessels may be obstructed ; their proper nerves may be violently irritated, or lose their power of acting ; and a great many other such

changes may happen which will be the cause of a great many diseases.*

Many experiments and observations concur in proving that, when nerves are compressed, cut, or any other way destroyed, the parts served by such nerves, farther from the head or spine than where the injuring cause has been applied, have their sensations, motions, and nourishment weakened or lost. When a ligature, made upon a nerve and stopping its power, has been taken away, the motion and sensation of the parts are soon restored ; from which it would appear that the nerves are principal instruments in our sensations, motions, and nourishment. Experiments and observations show, too, that when parts of the encephalon or spinal marrow have been irritated or compressed or destroyed, the parts of the body whose nerves had their origin from such affected parts have become convulsed, paralytic, insensible, or wasted ; and in such cases, where the injuring cause could be removed from the origin of these nerves, the morbid symptoms, observed in the parts to which these nerves were distributed, went off upon the removal of that cause.†

To the coats of the nerves an infinite number of vessels, both arteries and veins, are distributed ; so that, after a careful injection, the whole coat is tinged with the colour of the injected fluid. But when the fibrillæ are examined, even with the best microscope, they appear only like so many small filaments ; so that these nerves, which, if all joined, hardly make a

* Monro.

† Idem.

cord of an inch in diameter, would seem, from exerting themselves everywhere, to be distributed to each, even the smallest, part of the body.

It would be giving the reader unnecessary trouble to specify the names of the different nerves, as there are excellent works written on the nervous system. I shall, therefore, merely give the two classes by which they are distinguished, as they belong either to the encephalon or medulla spinalis. Thus, to the former belong the ten cranial pairs; whilst the latter originates thirty-one, which correspond to the vertebræ, from which they spring by bony orifices, taking the vertebral names in groups, being severally called cervical, dorsal, lumbar, sacral, and coccygeal. From these, as from a parent stem, proceed all those branches which give vital energy to every organ of the body. Without them, we could neither think, speak, see, hear, smell, taste, eat, digest food, laugh, weep, feel, or move; and yet this great agency in man's existence, like the hand which formed them, is quite unseen by those over whom it presides, although its vibration is felt by every beat of the heart.

I will not attempt to enumerate the branches which assist the movements of the head, shoulders, arms, hands, fingers, &c., nor the great ganglionic system contained in the viscera; but, as the intercostal is the largest nerve and most extensive in its ramifications, its course shall be described, as far as it is necessary for my purpose. The intercostal nerve, which is so called because one branch has a

passage between the ribs, is a very powerful organ either for good or evil; since any interference with its natural course may be the cause of severe pain, and perhaps permanent disease. In every case of posterior or lateral curvature, there is more or less pressure made upon the diaphragm, which is the muscle that supports the internal organs of the body; and the short ribs, which are always pushed up under the angle of the long ones, where extensive curvature exists, greatly irritate this very important organ.

When one of these ribs happens to come in contact with the ganglion, situated within its angle and sending off its branches to the various organs, the pain is extremely acute; also where pressure is produced by ankylosis of the shoulder or side, which is frequently the case in extensive curvature, it is the cause of excessive pain in various parts of the body, frequently very remote from the spot where the adhesions exist.

This intercostal nerve, consisting of two branches, one going behind, and the other running over the fore part of the subclavian artery, and then descending along the sides of the vertebræ of the thorax or chest, receives branches from each of the dorsal nerves; which branches appear to come out between the ribs, where the adhesion is made.

From the fifth dorsal nerve a branch goes off obliquely forward, which, being joined by branches from the sixth, seventh, eighth, and ninth dorsal, an anterior trunk is formed, which passes be-

tween the fibres of the appendix musculosa of the diaphragm, to form, along with the other intercostal and the branches of the eighth pair, a large semilunar ganglion. From this ganglion, situated between the cœliac and superior mesenteric arteries, whose roots are involved in a sort of nervous network of the ganglion, a great number of very small nervous threads run out, to be extended on the service of all the branches of those two arteries; and thus the liver, gall-bladder, duodenum, pancreas, spleen, jejunum, ilium, and a large share of the colon, have their nerves sent forth from the great solar ganglion.

Again—several fibres of this ganglion, running down upon the aorta, meet with other nerves, sent from the posterior trunk of the intercostal; which continues its course along the side of the vertebræ, and, after its entrance into several vital organs, forms a network upon the inferior mesenteric artery; where the nerves of the two sides meet and accompany the branches of this artery through various internal parts, as far down as the lower parts of the pelvis. The other branches of the third cervical nerve are distributed to the muscles and teguments at the lower part of the neck and top of the shoulder; and this is the reason why inflammation of the liver or spleen, an abscess in the lungs adhering to the diaphragm, or any other cause capable of irritating the diaphragm, is attended with sharp pain on the top of the shoulder, as well as with wounds, ulcers, &c., of this muscle itself. And if the irritation of this muscle is very

violent, it may occasion that convulsive contraction of the diaphragm called hiccough.

But, besides the nerves just mentioned, the twelve dorsal nerves of each side, as soon as they escape from between the vertebræ, send a branch forward to join the intercostal, by which a communication is made among them all. They likewise very soon send out branches backwards to the muscles, which raise the trunk of the body; their own principal trunk being extended outwards to come at the furrow in the lower edge of each rib, they run along the furrow towards the anterior part of the thorax, between the internal and external intercostal muscles, giving off branches, in their course, to the muscles and teguments of the thorax.*

To those who are not in the habit of reading anatomical works, I fear these extracts will appear very uninteresting; but, as they are exceedingly important to those who are suffering, or are the friends of those who are afflicted with curvature, spinal diseases, or want of vitality and power in the upper or lower extremities, I must entreat them to read carefully every sentence, when it will be easily seen that pressure upon any part of the body—by stays, paddings, ligatures, &c.—can never fail to affect some external or internal organ of the body, and become the cause of a greater or less degree of suffering. The description given of the intercostal nerve, with all its ramifications, though nothing more

* *Monro.*

than a faint outline of the powerful agency of that one nerve, is sufficient to show how much of our comfort and happiness depends upon the manner in which it is treated by its owner, though, from the cases which I shall give in the Appendix, the reader will see how sadly it is often deprived of that fair play which its importance demands.

But before I quit this subject of the nerves, I must not omit the five lumbar nerves, which it will be well to trace a little way in their course, though in comparison with their whole extent it will only be like a few footsteps to a mile. The five lumbar nerves, immediately after emerging from their several bones, communicate with each other, and being connected with the sympathetic nerve by branches which run over the side of the vertebræ, send large branches to the muscles and integuments of the posterior part of the loins. By their connection with each other, they compose a plexus or union of fibres, which is situated behind the psoas muscle, and sends branches outwards to the quadratus lumborum, and to the plexus of the thigh.

The first lumbar nerve is connected by a small branch to the twelfth dorsal, and by its trunk to the second lumbar; and after giving twigs to the muscles of the loins, detaches a principal branch, which, after passing over several other parts, sends nerves to the integuments of the pelvis, and to the upper and outer part of the thigh.* In this beautiful order the third,

* Fyfe.

fourth, and fifth go off into their various branches, guiding, silently, our unconscious, or conscious, movements, by acting upon each part of the leg and foot.

After reading the above concise and simple view of some of the nervous functions, should any of my readers desire a more extensive knowledge of this wonderful and splendid structure, I would recommend Sir Charles Bell's excellent work, from which many extracts would have been made, could they have explained what I earnestly desire to be clearly understood in the plan of my work.

Sir Charles Bell's work is intended for students of anatomy ; but, to confirm what I have stated on the great importance of avoiding everything that causes pressure upon this presiding system over the human body from head to foot, I will subjoin a short extract upon the distinct function of the nerves.

“ Nerves entirely different in function extend through the frame : those of sensation ; those of voluntary motion ; those of respiratory motion ; and lastly, nerves which, from their being deficient in the qualities that distinguish the three others, seem to unite the body into a whole in the performance of the functions of nutrition, growth, and decay, and whatever is directly necessary to animal existence.

“ These nerves are sometimes separate ; sometimes bound together ; but they do not, in any case, interfere with or partake of each other's influence.

“ If we take up a nerve to examine it, we find that it consists of distinct filaments ; but there is nothing

in these filaments to distinguish them from each other, or to declare their offices. One filament may be for the purpose of sensation; another for muscular motion; a third for combining the muscles in the act of respiration.

“Such, for instance, as the distinct functions of the nerves of the face; the fact, that all sensibility in the head and face depends solely on the fifth nerve; the singular circumstance, that the common sensibility of the whole frame results from a series of ganglionic nerves extending from the head to the sole of the foot; that the act of respiration in the face, nostrils, throat, &c., results from a series of nerves differing from the common nerves.”

The next chapter will be devoted to a concise outline of the muscular system,—that great, visible, moving power,—which, however, must first, itself, be set in motion by the agency of the nerves.

ON THE MUSCULAR SYSTEM.

The muscular system is now much better understood than it was a few years since; yet as the subject is so entirely connected with my treatment, and as even at this time there are many persons who have never studied it, I deem it desirable to bestow upon it a few plain remarks. The muscles are the instruments of motion, and derive their name from their contractile power. Each muscle is surrounded by a fibrous

membrane or sheath, the extremity of each has its origin in the immoveable parts, towards which they make their contractions; and their terminations, being planted into the parts to be moved, are all fixed to different bones. The belly, or fleshy part of each muscle, which is the thickest, consists of a longitudinally arranged bundle of irritable fibrillæ, each separated by myolemmæ from very small vessels called capillaries, which are filled with blood; these bundles, receiving numerous blood-vessels, lymphatics, and nerves, possess contractile power.

The extremities are the tendons, which are distinguished in most cases by their being generally smaller, firmer, and stronger than the fleshy parts, and by their having no contractile power. These parts of the muscles are often mistaken for ligaments; but the latter are appendages of the muscles, and their uses are to give insertion to muscular fibres, to keep them in their proper situation, to alter the direction of the tendons, and to keep them from starting. They also are placed where tendons play over hard substances, which contain a fluid to prevent abrasion.

The muscles formed in layers are generally disposed in pairs over the body, and their extremities being, as stated, fastened to different bones, the middle part passes loosely over any joint* which it is intended to move.

All the muscles receive nerves, which communicate

* With the exception of the large joints of the extremities, over which tendons only can pass.

with the lesser brain, the cerebral organ of the will; and when that organ, at the dictate of the mind, prompts a movement, it excites through these nerves the appropriate muscles, so as to contract or relax them. But the extremities of the muscles being, as before stated, fixed to their proper bones, it is obvious that they cannot by the contraction of the muscle be brought together without bringing with them the bones to which they are attached; and thus by the mechanism of the nerves and muscles, the intermediate joint or joints are bent, and motion takes place in the limb or limbs, or throughout the body. Each muscle has a particular name which is taken either from its shape, size, situation, direction, composition, use, or attachment. But to treat of them separately might perhaps only serve to weary many of my readers; while others, whom it might gratify, may find a much more interesting employment of their time in the perusal of works written directly upon the subject.

For the principles contained in the above statements I am indebted chiefly to Fyfe, partly to Walker.

C A S E S.

I.—The cases which follow are of a class so numerous and diversified, that it is difficult to select the most striking. Spinal curvatures are of such

various kinds that one is seldom a complete type of another. There are angular, posterior, anterior, and lateral curvatures ; some which have commenced from infancy, increasing with the growth, up to years of maturity ; others dating their commencement after the growth of the body ; others again of persons who, from debility or accident, have become crooked after they were thirty, forty, or fifty years of age. There are some with high and thick shoulders, others with partial depression of the spinous processes, and many with depressions of the muscles at the lower part of the back, taking away in various degrees the power of walking, and producing great nervous irritation and debility. And in addition to all these, there are many with adhesions of the different layers of muscles over the whole region of the back and chest.

One case of this latter description is that of a lady between forty and fifty years of age, who had for twenty-four years suffered from excessive pain and debility, and was compelled to keep the horizontal posture, although she had great demands upon her activity. When she was first examined, the slight exertion, she was called upon to make, made her quite faint, though the nature of her sufferings was very obvious ; for on making a slight pressure over the chest, I found it to be exquisitely tender, and though the surface of the back was less so, the slightest touch gave great pain.

As the hand passed over the muscles there was no elasticity, but the skin was as tight as if a piece of

cloth had been drawn over them, and she had no power to lift anything off the floor. This back and chest, however, had been rubbed and shampooed repeatedly and continuously, and afforded abundant proof of the total inefficiency of mere manipulation in such cases. My operations were obliged to be proceeded with very tenderly, but they were very effective; for in less than three months she had quite recovered, and was delighted to find that her strength had returned, together with the use of her arms and walking powers.

II.—Mrs. P—, another lady, was supposed to be paralysed in the lower extremities. She had a fall down some stone steps, through setting her foot on a brush which had been carelessly left there, and by the fall had struck the lower part of the spine violently. Her medical adviser, on seeing her, recommended the usual remedies in such cases. Nothing could be seen externally on the back but a slight bruise. She remained, however, in a state of helplessness six months, and was then told that nothing more could be done for her beyond attention to her general health; and consequently that she must never expect to walk again. Her husband was greatly alarmed on hearing this, and immediately brought her to me. As she had a journey of eighty miles, she suffered great pain, for the slightest movement was agony to her. When she reached my house, she was in a state of great exhaustion, and nearly fainted while under exa-

mination. On questioning her very closely respecting the fall, and making a firm pressure upon the part which received the blow, I was led to the conclusion that the last transverse process, on the left side of the lumbar vertebræ, had received the blow in so forcible a manner as to push it down laterally upon the ligaments of the os ilium. Under this impression my treatment was directed, and she returned home at the end of six days quite restored. No case of the same kind had come under my notice previously; but the same month another lady came, without having heard of the former case. She was suffering from a similar fall. She had not, indeed, quite lost the power of walking, but she felt great weakness and tremulousness in the lower extremities, which led her friends to apprehend paralysis. From the nature of her fall, I took the same view of her case as of the last; and to her astonishment, and my own great surprise, the first operation restored to her the full use of her limbs.

Now, in both these instances I feel convinced, that the gentleman who had attended them had not, through false delicacy, been allowed to make proper examinations.

III.—The next case, when brought to me, was one of many years' standing; it is that of a lady, suffering not only from paralysis, but from a very extensive posterior curvature. When sixteen years of age, she fell from her horse, while endeavouring to gain a given distance before another lady; and there-

fore fell with great force. Her back soon began to show symptoms too evident to be mistaken, and the health gradually gave way. The use of the limbs was retained for some years, but as the enlargement of the back increased outwardly, the incurvation of the lower part proportionably increased. In consequence of this the false ribs were displaced, and thrown up towards the diaphragm, disturbing that sensitive muscle, with all its ramifications of nerves, and producing a derangement of the whole organization of the body, together with an entire loss of the use of the lower extremities ; and to all these evils must there be added a sad accompaniment of excruciating pain and violent spasm.

In this indescribable state of misery she lived on for some years, life ebbing and flowing at its very lowest point of vitality. The legs were so drawn up, that the soles of her feet were in a line with her back, and the upper and lower part of the leg were so closely approximated, that a thin towel was drawn between them, to prevent the skin of each from growing together. On my first examination, my heart almost fainted, at the thought of undertaking a case where the health seemed so unequal to the endurance of the slightest disturbance. Yet, knowing that death must very soon ensue, unless relief could be afforded, and as she had come at great risk from a considerable distance, I felt that I could not, without great unkindness, indulge my timidity. She was looking to me with intense anxiety ; and her mamma, whose eyes were suffused with tears, was waiting with breathless impa-

tience to know if there were the slightest hope ; and the hope was, indeed, very small. But I felt that I could safely hold out to them the encouragement of the negative comfort, that the case was worth a trial ; which happily was proved by the result. At the end of a few months, the back had lengthened six inches ; and when she left my care, she was able to walk a considerable distance without assistance, while her health had quite returned. It was, indeed, like life restored to a corpse ; for the flesh, which had withered away, revived again, and covered the bones, which before had only been covered with a thin skin.

IV.—Another remarkable case is that of a lady, forty years old ; who, after her second accouchement, was confined to her couch eighteen years, having lost the power of walking and sitting. Her health had so given way, that she could only with difficulty keep anything upon her stomach ; and she was quite blanched and attenuated in her appearance. On careful examination, I found curvature of the lumbar vertebræ, and great depression of the muscles below ; which was probably produced by her continuous horizontal position, and a displacement of the two last transverse processes of the spine. The whole of the innominatum was also in an abnormal state. The treatment, however, soon began to afford some relief, and her general health gradually improved.

Her walking exercise was begun with only two steps, to be increased one daily ; she commenced to

sit up for one minute only, and this time was also to be increased by one minute daily. By these progressive means her powers of sitting and walking slowly improved, till each day gave most satisfactory evidence that they would return in full force, as her general strength increased. Our most sanguine hopes were realised; she returned to her home, with the appearance of a lady changed from a faded beauty, to one in good health and the bloom of middle life.

V.—Another lady is now under treatment, who had been in an ill state of health fifteen years. She was thrown out of her phaeton, and, from her fall, her back had received great injury; her health also was impaired. After some time, she assisted in nursing her aged sick mother, who required, occasionally, to be raised and lifted. In consequence of this, her back received further injury; and a projection of the dorsal vertebræ succeeded, with a corresponding inverted curvature of the lumbar vertebræ. As these curvatures increased, the health gave way in proportion; and she was soon transformed in appearance from a lady of middle age and good figure, to one advanced in life; with the shoulders high, and the back considerably bowed, and her height decreased in proportion. Through this conformation of the back, the chest became exceedingly contracted, and the vessels of the throat were depressed by the bending forward of the head. The breathing showed the enfeebled state of the respiratory organs, which had

but very little power to inhale the atmospheric air. The conformation of the back and thorax produced great pressure upon all the internal organs; and the abdominal muscles were depressed and contracted. The floating ribs were so displaced, drawn together, and raised up under the angle of the long ribs, that the contractile power of the diaphragm was entirely destroyed, and its action upon the short ribs could not be exerted. Moreover, the muscular action of the abdomen could not exert its power in respiration, so that the breathing could only be assisted by the action of the sterno-abdominal muscles. The derangement of these various muscular organisms produced, also, a pressure upon the nerves of the glandular excretories, impeding their functions and energy over the whole body. The power of the upper and lower extremities was therefore destroyed; which took away all power for the slightest exertion, even that of writing a letter, or lifting any light weight. Neither could the patient walk across the room, without resting her arm on the furniture. The treatment in this case was obliged to be commenced very gently, as the muscles were exquisitely sensitive. The pain, however, gradually subsided with each operation; and soon she could not only bear the operations, but enjoyed their soothing effect. Her health is now restored, and the use of the arms has returned; she can even take long walks, and her figure is becoming so erect, that she has already gained three inches in height.

VI.—Another lady was dismissed, a few weeks since, quite restored, who had been suffering, for three years, from constant irritation of the spine, and extreme feebleness of the walking powers, which were previously very good; besides which, she found it very difficult to sit in an erect posture. Her general health, therefore, became impaired. On a careful examination of the case, it was found that there was quite sufficient cause to account for all these symptoms; while it became evident that, unless she could obtain prompt attention to the peculiar nature of her complaint, she must inevitably have to endure years of severe suffering. The layers of muscles over the dorsal ribs were confined to each other by adhesions of their membranes; six of the spinal processes between the shoulders were so depressed as to be quite flat, and six below were expanded one inch apart, while the four next below were depressed and invisible. Through this unequal state of the vertebræ, the centre of gravity was lost; and, to assist the balance, the shoulders were constantly raised up, and the beauty of the neck destroyed. The right shoulder was raised two inches above the left; the ribs on the right side were slightly expanded; and three of the short ribs were pushed up, causing irritation of the diaphragm. The ribs on the left side had too much approximated, but were not inverted. The left ilium was two inches higher than the right; the whole innominatum, or pelvis, was, consequently, displaced; and each part of the thorax, or chest, was obviously

put into an abnormal state, corresponding with each part of the back. When the state of the trunk was ascertained, the nature of the treatment was obvious. The improvement in her health and figure was soon evident, and at the end of eight weeks, her fine figure was restored ; so that she returned home in good health and in youthful vigour.

Very few cases, however, are restored so speedily as the above. In many instances, when very much less abnormal appearance is visible, even in lateral cases, there is often latent internal mischief, which cannot be immediately detected ; and there are many other causes of delay, such as peculiarity of constitution, old, confirmed habits, &c. Where the health is good, slight lateral curvatures, if not of long standing, readily yield to the treatment ; and posterior cases, also, if the cartilages have not ossified.

But anterior and angular curvatures are always more or less protracted, according to the length of time from their commencement, rather than according to the age of the patient ; for many who have come under treatment at and above the middle of life have been restored, if the curvature has not existed long, as speedily as younger persons. This is, no doubt, attributable to the better notion they have of assisting themselves to overcome old habits, and the greater attention they pay to the directions given them during the intervals of the operations. It is thought by many, that when the growth of the body has ceased, nothing can be done to restore the figure ; and that, in

cases such as the following, the attempt would be quite hopeless at any age.

VII.—A young gentleman came under my treatment, aged fifteen years and a half. When an infant, he received a fearful injury, through the thoughtless conduct of his upper and under nurses.

The former had left the child to the care of the latter, during a short absence, and, on her return, found her little charge quite happy and contented; but, instead of being pleased and thankful to her fellow-servant for her care and attention, she foolishly felt jealous, that the child did not immediately hold out his arms to go to her, but rather clung to the other. She then attempted to take him away by force, while the other held him back; and, in the struggle, the first of the lumbar vertebræ was displaced, causing years of suffering for a beautiful, healthy little boy, and of anguish of heart for his parents, on account of what had befallen their only living child. Everything that kindness and skill could suggest was done to arrest the progress of the disorder, but all in vain.

An angular curvature soon appeared; six of the lower vertebræ projected posteriorly; each joint rapidly enlarged, and had become, when he came to me, as large as a walnut. The six upper dorsal vertebræ formed a deep concave curve anteriorly, which caused the shoulders to be raised so high as to obscure the neck. The thorax was equally displaced; and the

abdominal muscles had entirely lost their rotundity and strength to support the upper part of the trunk of the body ; and, consequently, the angle of the long ribs rested upon the bones of the pelvis. All muscular development over the back was destroyed ; the nervous functions were altogether impaired ; and the growth of the whole body was so greatly impeded, that the trunk was not higher than that of a child of four years. On working upon the back, it gave me great pleasure to find, notwithstanding the enlargement of the vertebræ, that no disease existed. But the cartilages, as the rings of the vertebræ expanded, had found an entrance between the interstices and spinous processes ; and this, with the thickened integument, had given the appearance of disease for which it had been treated. His general health was delicate ; but my treatment was carried out with the conviction that the vertebræ were quite healthy, and each operation gave great comfort and relief from pain. The health soon began to improve, and the growth of the body followed. During the first six months, my patient increased four inches in height ; and when he left me, he had gained no less than nine inches. The neck was four inches above the first dorsal vertebra, and the muscular development of the whole trunk and arms was perfect.

VIII.—I have, at this time, a remarkable case under treatment.

A lady, sixty-five years old, has suffered from lame-

ness fifteen years, through a fall from a horse, which caused a displacement of the hip-joint, attended with excessive pain in the knee. Her surgeon was requested to examine her ; but, from false delicacy, she led him to suppose that the mischief was confined to the knee only ; consequently, while the inflammation was subdued, the leg remained partially powerless. She could walk, but it was with great difficulty and pain, not only in the leg, but also in the lumbar region of the back ; and it was only in the recumbent position that she could find relief. The want of exercise, and the constant pressure upon the muscles of the back, was the cause of great muscular debility ; and the general health became impaired. On examining her, I found that the sudden jerk given to the leg by the fall had strained the ligamentum teres, and slightly loosened the head of the os femoris from the acetabulum ; thereby impairing the strength of the obturator muscle, which caused the knee to turn inwards, and gradually to displace the trochanter major. The abnormal position of the right leg caused the weight of the body to be thrown upon the left side of the innominatum, and thereby to destroy the equilibrium of the body. The continuously uneven step caused a lateral curvature of the spine, consisting of a dorsal curve and elevation of the ribs on the right side, and a lumbar curve on the left. On the corresponding side of each, there was great depression of the ribs ; and on the lumbar concave side of the vertebræ, the points of the short ribs were lodged in the cavity of the pelvis ; and the

neck was greatly attenuated. The treatment was commenced very tenderly ; and each operation was attended with relief, comfort, and improvement. The lady is now greatly improved in every respect ; the leg has increased in size, and is restored to its proper position.

The case is written out by her desire, as she wishes to let her medical friend be made acquainted with the state in which I found her.

It is not my intention to bring forward many cases ; but a few striking ones will serve to show how much may be done, by ascertaining the real state of the existing evil, and the proper method of removing the obstruction of the circulating fluids. To these, however, I shall add a few more, which will serve to confirm the very important principle by which I am always directed in my work upon the muscular, tendinous, ligamentous, and nervous fibres.

IX.—M. A. B.—The first case to which I invite the reader's attention is the following :—A lady who had suffered from a fall off a pony, when quite a child, in consequence of the blow which she then received in the lower part of the back, suffered from the formation of abscesses, producing constitutional disease of so severe a nature, that her health gave way, and her life was despaired of ; the suppuration having become so extensive as to require that she should be kept quite immovable. In this state she remained some years, watched by her anxious parents with the most tender solicitude, and

placed under the best surgical care ; through which, by the blessing of God, her life was spared. But, in order to subdue the discharge of pus, it was necessary to induce partial ankylosis of the innominatum. When this was effected, the health gradually returned; but, either from the effect of the fall, or from the improper position in which she was obliged to be kept, or from both causes combined, the head of the os femoris was loosened from the acetabulum, through a strain of the ligamentum teres ; which, most probably, happened when she fell from the pony, and was, undoubtedly, the origin of the other displacements. The trochanter major was displaced ; the obturator muscles, being weakened, caused the knee to be turned inwards, and also a shortening and wasting of the leg. The left os ilium was raised considerably above the right ; and the walking power was gone, except by the aid of crutches, which were thankfully adopted, and continued to be her companions for upwards of twenty years. She then heard of some of my cases, and came to me for examination.

Her case, upon a very minute investigation, appeared clear to me ; but my opinions respecting it differed, in some points, from those which had been previously given by her medical men, who thought it would be unsafe to disturb the ankylosis,—an apprehension which, a few years before, would have prevented me from encountering a responsibility apparently so fearful ; but, having had a large number of cases, more or less extensively ankylosed, which had given way to

cautious treatment, with most beneficial results, and without, in one instance, being attended with any mischief, I commenced my operations with every hope of success, and had the happiness to find that I had not been too sanguine. After a few months, the leg considerably lengthened, and became much stouter and stronger. The anchylosed parts are now so far set free, that my patient can walk short distances unaided by crutches, or even an arm. The lateral curvature of the back, which had given way through bad position, is nearly straight; and the whole figure is quite changed.

This case is still in progress.

X.—Another singularly interesting case is that of a sweet little girl, who, about the time of cutting her double teeth, was taken ill with gastric fever, which continued some weeks; and so completely was she prostrated, that when the fever was subdued, her parents, to their dismay, found that their precious darling child had lost the use of both arms; and, although everything that medical skill could suggest was most strictly observed, the arms remained still paralysed. At the end of two years, she was brought to me, and the result of my examination was the discovery that the arms were entirely powerless, as she could neither raise them to her head, nor any way use them even to defend herself when falling.

Her mamma told me that she dreaded to see her

stumble over anything, as she always fell flat upon her face, without the least power to guard herself by her hands. There was an unsteadiness, also, of the feet and ankles, arising from general debility; but there was not the slightest indication of anything wrong with the brain; for, without being too precocious, she was very intelligent and lively. Nor was there any appearance of disease in the vertebræ, though one shoulder was slightly elevated, through general weakness. On lifting the arm of my little patient, the cause was easily discovered: the capsular ligaments of both arms were so stretched, that the heads of the ossa humeri were below the edges of the glenoid cavities of each scapula; or, in plain language, the arms were loosened from their sockets; the scapula, or shoulder-blade, being turned from its proper position, so that one of its angles was brought down under the arm: the coracoid process was thereby pushed anteriorly out of its place; the acromion and clavicles, at the articulations, were drawn under its concave side, which raised it up an inch above the humeral end of the clavicles; the passage at its roots, for the subscapularis muscle, was obviously obstructed, and also at the part and side which gives origin to muscles and a strong transverse ligament fixed to the acromion, for the protection of the joint.

The altered situation of the clavicle was attended with great mischief to other important muscles, as the sterno-hyoideus, the sterno-mastoideus, and the pectoral, have each in part their origin in this bone, into

which a large share of the subclavian is also inserted. All this dislocation disorganized the parts, and accounted for the paralysis of the arms without any pressure on the cephalon, or spinal cord ; and at once suggested the plan to be pursued ; which was, to analyse, by the perception of the touch, the abnormal position of each bone and fibre ; to direct their course, and, by this means, to give fair play to the motor nerves ; and, at the same time, to act very gently on the pulley of the socket, with a view to the restoring its elasticity. The treatment, under the Divine blessing, answered admirably ; for, at the end of twelve months, beyond the most sanguine expectations of her friends, she was quite restored.

It may be a warning to sick-nurses to know, that there is every reason for supposing that all this dear child's suffering, together with the distress and anxiety of the parents, was the consequence of her having been lifted up by her arms during her extreme muscular debility.

XI.—I have a case at this time under my treatment even more distressing than the last. It is that of an interesting little girl of eight years, who, when seven months old, suddenly lost the use of the right arm and of both legs, and had ever since been considered paralytic. She has been under eminent medical and surgical advice in Glasgow. The whole pelvis was displaced, the left shoulder elevated, both legs drawn up at an angle, and the left leg, from the

knee to the ankle, twisted round ; so that, when in the recumbent position, the sole of the foot was turned upward, having no muscular development, and not being longer than that of a child three years old. The knee was turned inward at an acute angle, and both knees were contracted to complete flexion. The arm presented the same appearance as the one described in the preceding case, except that the pully was not quite so much elongated, though the arm was entirely useless. The same treatment as that above named has therefore been pursued, and with equal success. She has now perfect use of the arm, and has worked a pair of slippers for her papa, with her right hand. The legs are improving most satisfactorily, for they can be brought down almost straight. The foot has nearly returned to its proper position, and is much grown ; she can now kneel without support, and can draw the legs up and down by her own power. She tells her nurse, she feels so strong, that she fancies she can walk ; which indicates that the power is fast returning, and that her general health has greatly improved. On close inquiry as to the origin of the complaint, I found that the child had been discovered, by her mother, screaming violently, on the hearth-rug, in the nursery. The nurse would not admit that she had had a fall ; and it was therefore concluded that she had fallen down in a paralytic fit ; but my impression is, that paralysis was but the consequence of displacements caused by a fall.

XII.—The following is a case of great peculiarity. A young lady was brought to me, at the age of sixteen, who had become lame when two years old, without any known cause to account for it. But from the appearance of the foot, when she came to me for examination, it is probable that she had been lifted up suddenly, and put down upon the ground again with too great force; for the small bones of the upper part of the foot were all jerked up, the naviculare was loosened at its articulation with the astragalus, the os calcis, or heel-bone, was loosened from the astragalus, whereby the tendo Achillis was elongated and become invisible. The back part of the heel presented a most singular appearance, by its great length and extensive circumference, measuring eight inches and a half; and when it was on the ground, the sole of the foot was raised at an angle of two inches. The peronei tendons had left their places, under the maleolus externus; and through the patient's having worn an iron support at the anterior side of that bone, the iron had formed a lever, which had gradually turned the knee inward, and by twisting it had drawn the fibula in an oblique direction, from the ankle to the knee. The peroneus brevis muscle was, through the displacement of the fibula, pushed up towards the skin; giving the appearance of the calf of the leg being at the front part, while the back part, where the calf ought to be, was quite flat. When my treatment commenced, the injurious machine, called support, was put aside; and the operations, proceeded with upon my own principle,

were soon rewarded by an evident improvement. The leg has now nearly recovered its natural shape ; every bone is in its normal place ; the tendo Achillis has recovered its development ; the muscles have increased in bulk and strength ; the ligaments are strong and firm ; and the lady can walk without any artificial aid.

XIII.—A young lady, seventeen years old, had been, from infancy, considered to have paralysis of the right arm and leg. The arm was useless, and she walked very lamely. On examining her, I found the top of the shoulder immoveable at its articulation : the capsular ligament was rigid ; the elbow and wrist stiff ; and the fore arm twisted round ; so that the back part of the hand was turned toward the front of the body. The leg affected was one inch shorter than the other ; but there was nothing peculiar in the upper part of it ; and though the knee was rather stiff, and slightly turned inward, it was not sufficiently so to account for the lameness. On examining the foot, however, I found a considerable displacement of the joints of the great and of the three next toes. In adapting the position of the foot to these toes, I found there was a constant strain upon all the muscles, tendons, ligaments, nerves, and blood-vessels, over the whole foot ; through which, no doubt, the leg lost its power ; and came to the conclusion, that the abnormal state of the foot was the cause of an uneven step, by which the bones of the pelvis were displaced, so as to

cause a curve of the lumbar vertebræ. The arm and leg presented the appearance of a paralytic person ; but she was in good health, and the muscles of the arm and leg were firm, and afforded no indication of pressure on the brain or spinal cord. The treatment was carried out in its own peculiar way ; and the result was, that, when she left me, she could walk well, and had recovered the use of her arm.

XIV.—Another case is that of a young lady who, from a fall from an upper story to one below of an unfinished house, had, for six years, suffered from distressing lameness of one foot, and had become so helpless, that, if she were on the floor, she could not have raised herself, as she told me, though even the house had been on fire. She had suffered excessive pain, which indicated latent disease ; so that her surgeon had proposed to take out one of the metatarsal bones, and put a silver tube in its place. The dread of this operation induced her parents to bring her to Liverpool, to consult me. Upon examination, I found that all the bones of the foot had been loosened at their articulations, and, consequently, that the muscles, ligaments, and nervous fibres had been put into an abnormal condition, in every part of the foot. This destroyed the nervous energy, and was the cause of lameness. My operations were directed accordingly ; and, through the Divine blessing, she could walk before the end of the second week after their commencement. From sitting in an improper position,

a lateral curvature had been produced ; on which account, she remained with me two months ; during which time, she tried the strength of her foot, by long walks, and in many other ways, without producing the slightest retrogression.

XV.—A young lady, alarmed by the horse in her phaeton running away, jumped out, as ladies too frequently do, and so injured her knee, that she could neither walk nor stand. When I first saw her, she was keeping the leg bent at an angle ; which she had been ordered to do, as it was supposed she had snapped one of the ligaments. She was ordered to keep it in that position until it was healed ; which process was expected to require at least six months. On examining it, I was glad to find nothing more than that the internal condyle of the femur, and corresponding tuberosity of the tibia, had been jerked apart, by the knee having been turned inward when she fell ; and that the cartilage had passed out, and filled up the open space, causing the external condyle and tuberosity to be pressed closely together ; in consequence of which there was an enlargement of the inside, and a corresponding depression of the outward side of the knee. The parts were swollen, and very sensitive ; yet, as they were assisted to take their natural position, they became more flexible ; and, with each operation, the pain gradually subsided ; although part of the treatment consisted in separating, from their too close approximation, the external edges of

the condyles of the femur and tibia. At the end of a month from the commencement of the treatment, she was walking in her garden without any assistance. Now, here I must confess to a departure from surgical theory, which insists, that when cartilages are displaced, they must not, on any account, be forced back, as this would set up inflammation. Now, it may seem presumptuous in me to advance an opinion, in opposition to that of men of great minds and undoubted skill; but, it must be remembered, that this theory is advanced on the supposition, that the practitioner is a man; and, if I may be pardoned for such apparent egotism, I would submit that, in some instances, what would not be safe, in the practice of a gentleman, would be quite admissible and safe in that of a lady. Such a powerful force, as a surgeon might apply, would inevitably produce serious mischief; but, during twenty-two years, my practice has always been, to make a passage for the cartilages to return, wherever they have been displaced in any part of the body, especially at the interstices of the ribs, of the back, and chest, by forming levers with my fingers to expand the bones; which, in some instances, have even had adhesions of the periosteum at their articulation. In no one instance has inflammation supervened.

XVI.—The following is a very remarkable case of ankylosed knee, of many years' standing. The patient is the son of a great general, in whose written life the lameness of his little boy is mentioned.

Through an accident, when he was at the age of three years, his knee was injured; matter formed in the joint, and it became extensively enlarged. The extensor and flexor muscles lost their elasticity; and the leg rapidly became attenuated.

Hē was placed under surgical treatment; but the suppuration was so extensive, that amputation appeared inevitable. This, however, his grandmother—for his mother was dead—most steadfastly opposed. In this state he remained some time, when a kind friend, who felt deeply interested in the little, afflicted, motherless boy, offered to take him to France, in search of efficient surgical treatment. But, as no relief could be obtained there, he was taken to London, where he remained under surgical treatment thirteen months. At the end of that time, not having derived any benefit, he was brought to me; wearing a very heavy support, which extended from the top of the pelvis to the ankle. The pressure and weight of the instrument had changed the position of the innominatum, and thrown the weight of the body upon the right ilium; which produced a curvature of the lumbar vertebræ, and gave an abnormal direction of the extensors and flexors of the leg, with their attendant arteries and nerves, impeding the channels for the fluids, from which the leg derives its nourishment. Consequently, while the knee was very much enlarged, the leg was nothing but skin and bone; having remained in the same state it was in before the machine was employed. His countenance indicated an ex-

ceedingly morbid state of the system ; and he was walking on crutches, with his toes only touching the ground. Although the right leg was elongated, the right foot was two inches and a half shorter than the other ; while the left leg and foot were large and well formed. Although extensive ankylosis existed in the right knee, there still remained matter in the cavities ; so that it was necessary to proceed with the treatment very cautiously ; and, on working upon the joint, I found it in a most critical state of displacement. The os femoris had been jerked so far over the tibia, that the external condyle of the femur had slipped down into the cavity of the tibia ; and stretching the tendons above, and ligament below the patella, had loosened the patella and given it freedom to slip over the edge of the condyle, which was sunken into the cavity of the tibia. The elongation of this strong ligament must have been effected by the weight of the thigh-bone, which protruded over the leg, gradually stretching it. For a period of seven years—for he was now ten years old—the tendo Achillis could not be distinctly felt ; and the tendons of the peronei were so far behind, that they were at the back of the heel ; so taking away their support from under the malleolus externus. The cavity for the lubricating gland was filled up with abnormal tegument ; the ligaments extending to the astragalus, calcis, and navicular, and those extending over the tendones peronei had entirely lost their contractile power, by being so extensively drawn out by the other displacements ; while

the plantares, gastrocnemises, solens, popliteus, and other large muscles of the leg, along with the ligaments of the knee, were completely twisted out of their proper direction. It was, therefore, impossible for the nervous functions to exert their power; and my impression was, that the irritation kept up by all those displacements, without any constitutional disease, was the cause of all this mischief. Consequently, the plan of treatment pursued was, to work upon each part individually, and very tenderly. By this means, the improvement was soon evident. After a few months, the crutches were laid aside; the growth of the muscles returned; and the general health was very much improved.

But at this state of progress he had an accident, which again injured the knee, in consequence of which inflammation returned, and matter formed again. The treatment was then suspended for a few months, and change of air was recommended, after which he returned to the treatment, although suppuration had not subsided. Absorbents were applied to the knee, and the operations continued to the other parts of the leg. Having been placed at New Brighton College, where he had the advantage of personal care and sea-bathing, he came to me three times a week, till his general health was quite established; the discharge gradually stopped, and the knee became quite healthy. He can now walk, run, and jump; his right foot is now as large as the left; the muscles of the leg have also increased in bulk; the knee-joint is fast recovering

its normal shape and strength, and will only require a short time longer to become as fine a leg as the other, which is very strong and handsome.

XVII.—The next case is that of a young gentleman at the age of fourteen, who, when kneeling on the hearth-rug, ran into the side of his leg a needle threaded with cotton; which instantly disappeared from the swelling that suddenly took place, before medical advice could be obtained. Every attempt was immediately made to extract the needle, but without effect. Deep incisions were made, and inflammation followed, succeeded by suppuration. The case was seen by surgeons of high repute, and through great skill, the leg was saved from amputation. After two years, while wet bandages were being applied, the needle and thread unexpectedly came away, bringing also a portion of bone, about the size and form of a die. The pain then gradually subsided; but the joint was completely contracted, and the leg kept bent at an angle. He then, by the aid of crutches, commenced walking, but the toes only touched the ground. Through this uneven position, the pelvis became displaced, one shoulder was elevated, and the body lost its centre of gravity. In this state he came under my treatment. On examining the knee, I found not only a stiff joint, but that the position in which the leg had been obliged to be kept, in order to relieve the excessive pain, had caused so extensive a displacement of the joint, that the os femoris

had altogether lost the support of the head of the tibia, by the latter having receded posteriorly and externally, causing a considerable deviation of the patella. The treatment was commenced very gently, but with great success, so that at the end of six months he could walk with the aid only of a stick. The treatment has been continued, with occasional suspension of the operations, up to the present time. The heel is now quite on the ground, and he walks with a very slight limp, but with his body perfectly erect, and without requiring any longer even the aid of his stick.

A short time will, by God's blessing, complete the recovery of the leg, which must for ever have remained powerless, but for the confidence of his friends in the treatment, the perseverance of the patient himself, and perhaps I may add, a clear perception on my own part of the plan to be pursued.

XVIII.—The next example is one of displacement of the bones of the knees, being what is commonly called knock-kneed, in the case of a young lady eighteen years of age. When twelve years old, it was observed that she felt fatigued, after walking, and expressed a desire to be allowed to sit while her companions were at play. As she had previously been a very active, sprightly girl, this excited some uneasiness in the minds of her friends, and an eminent surgeon was consulted, who recommended iron supports, with the use of which she was enabled to walk with less fatigue. Hope was now entertained that

her health and activity would soon be restored. She continued to wear them two years ; when, however, she again called the attention of her friends to the appearance of her knees, which had become much enlarged : they, thinking the supports had been injurious, threw them aside, and sent her to take lessons in dancing, in which she greatly delighted, and, strange to say, so much excelled, as to prevent her friends from detecting the progress of the disease ; although it so rapidly increased, that, when the knees were not folded over each other, but the insides brought together, the ankles were one foot apart, so that the height of her body was diminished not less than six inches. Yet this was attributed to the want of growth, until, through a fit of illness, the deformity was discovered and great alarm excited. Surgical aid was again called in, and the complaint pronounced to be an enlargement of the knee-joint, and treated accordingly ; yet there was no improvement, and her health gave way to such an extent, as to excite great anxiety in the mind of herself and friends.

She was then recommended to come to me, and on the first examination I was apprehensive that the diagnosis was correct. On the back part and outside of the knee the ligaments were greatly contracted, so as to cause an inversion of one inch and a half deep ; while, on the outside, the head of the thigh-bone projected over the bone of the leg, causing the appearance of considerable enlargement of the joints. In consequence of wearing iron supports, the straps which

fastened them had displaced three of the short ribs and caused a curvature, extending to five of the lumbar vertebræ on the left side ; four of the dorsal vertebræ on the right side had also deviated from the column, causing a slight elevation of the shoulder. In consequence of the first curve there was a convexity over the lower ribs on the left side, and a corresponding sinking on the right. This also tended to diminish her height. The same plan of treatment described in the former cases were employed in this, varying the exercises of the back with those of the limbs. She was allowed to take short walks in the open air, increasing the distance each day. This lady was with me eighteen months, at the end of which her back was straight and well formed ; the bones of the knees were restored to their proper place ; and her height had increased several inches.

XIX.—As a warning to nurses, I will mention an example of the serious effect produced on a fine new-born infant son, through the nurse's wishing to show the remarkable strength of the back of the child. For this purpose she raised him to the sitting posture only two hours after his birth. The consequence was that the head immediately drooped, and lock-jaw succeeded, which continued some hours. But just as he appeared about to expire, the jaw unlocked, and the child revived. But the centre of gravity was lost ; the spine could no longer sustain the weight of the head ; and the upper and lower extremi-

ties were entirely powerless. Yet the body and limbs grew, and the muscular system, although flaccid, was not inferior in form and size to that of other children; indeed, he was even tall of his age.

But when at the age of seven years he was brought to me, he could neither stand nor walk alone, nor speak, so as to be understood, except by his mamma and nurse.

The head, too, was quite unsteady, so that when he attempted to move he fell backward, and it was truly distressing to see him attempt to take anything in his hands. But with all this abnormal condition of the body from head to foot, together with an appearance of want of intellect, arising from want of the power of utterance, combined with an excessive desire to make himself understood, he was exceedingly intelligent, and his figure was remarkably fine. It was therefore obvious, that the brain was healthy, and that the paralysis had its origin in nerves, or branches of nerves, unconnected with the cephalon. On a careful examination of the head, face, and neck, I found all the sutures of the head had united perfectly; but on putting the finger between the sides of the maxilla inferior, that is, to the middle of the lower jaw, it was obvious that the thin cartilage in the middle of the chin had not sufficiently ossified to keep the jaw firmly united; probably, through the jerk and injury the mental epiphyses of each ramus must have sustained when the jaw was locked. Through this slight laxation, the muscles, which are inserted into this part to raise the

chin, had been deprived of their direct action, and consequently of the power of keeping the mouth shut. On passing the fingers over the condyles of the os occipitalis, I found an unnatural appearance at its connection with the first vertebra of the neck. The tegument on each side of the atlas, or first vertebra of the seven cervical was considerably thickened; moreover this first vertebra, next to the condyles, and the second and the third were very much depressed; the muscles of the neck were exceedingly flaccid; and the spinal column had no elasticity, or power to exert the flexor or extensor muscles of the back. The sternum muscles were in the same debilitated state; and five of the thoracic ribs, above the angles on each side, were inverted. The body, therefore, had lost the power of sitting erect; and by its constantly bending forward, the spinous processes, from the fourth dorsal vertebra, had expanded; and, in a few months longer, must have established a projection, consisting of the three last dorsal and the whole of the lumbar vertebræ. The arms were luxated at the elbows, wrist, and fingers; so that the little fellow could not take a marble off the table, but with great difficulty. The knees were slightly bent inward; the feet were very much turned inward; and the peronei tendons had entirely left the maleolus bones without support, so that both ankles presented the appearance of being dislocated. The abnormal position of the feet had given a wrong direction to all the muscles, tendons, and ligaments of the feet, and entirely impaired the energy of the nerves.

Indeed, the nervous functions, throughout the whole body, were disarranged. When it is considered that from the occipital bone, in connection with the atlas where the head has its flexion and extension, to the very ends of the toes, every part of the body was deprived of the power of flexion and extension, it is obvious that the nerves could not possibly exert their motor power.

And whether the tongue derive its movement from the fifth pair of nerves, as is supposed by Sir Charles Bell, or from the ninth, according to Munro and Chiselden, it was evident that there was an obstruction to the gustatory nerve, as the tongue refused to obey the will, in eating, drinking, and speaking. To enlarge upon this very remarkable and interesting case, and trace the muscles, tendons, ligaments, and nerves which have their origin in the various parts more especially affected, would of itself require a treatise. I shall only remark, that the beautiful combination of design, in one part of the nervous system presiding over the other, could not be better illustrated than it was, in the want of power, in the motor nerves, to exert their influence on the respiratory system; "which must become voluntary, in order to push out the breath in combination with the contraction of the larynx, tongue, and lips, with infinite graduation of force, in order to produce modulated sound, and more especially articulate language."*

Such was the state of my patient, when first brought

* Bell.

to me ; and my readers, I am sure, will readily sympathise with me in the satisfaction with which I refer to this dear boy, as an example of what can be effected by my plan of treatment, in a case so entirely hopeless as his appeared to be, after having been under the first medical and surgical skill. I am happy to add that, although friction previously performed upon him every evening at home gave him great uneasiness, he very much enjoys his operations with me ; and his mamma assures me, that she can perceive an improvement after each of them.

He now can walk alone, draw pulleys attached to weights, lift a fourteen-pound weight from the ground with either hand, and is able to articulate many words distinctly ; and gives every hope of being entirely restored.

XX.—A great number of cases might be adduced of stiff elbows, wrists, and fingers restored, where they had been quite useless ; but to describe them separately would fill a volume ; which is quite unnecessary, as those already described will be sufficient, I trust, for my purpose, which is simply to explain my system by its practical results. But one case more must be mentioned, because it is that of a lady above 60 years of age ; a period of life, at which it is generally believed to be impossible to effect a cure. This lady had slipped with her foot, in going up a flight of stone steps ; and in advancing her hand to ward off the blow, had caused a slight displacement of her shoulder,

elbow, wrist, and metacarpal bones of the thumb and fingers ; so that all the parts immediately became inflamed, swollen, and affected with intense pain. Her surgeon was consulted ; and the acute pain, upon the application of the embrocation prescribed, subsided. But the arm remained quite useless, and painfully sensitive to the slightest touch. She then consulted another surgeon, without finding any relief ; after that, another, and another, with the same result ; till at last she was told she must submit to the misfortune of having a stiff and useless arm for life. At that time, however, which was about six months after the accident, she was recommended to come to me ; but as she resided in London, she hesitated to take so long a journey with the use of only one arm, especially as she felt sceptical about the utility of trying anything more, after having had the advice of so many eminent surgeons. She was, however, at last prevailed upon to make the experiment, and she came.

On examining and working down upon the muscles, tendons, and ligaments, I found the ease as before stated ; the arm still useless, and very painful when touched. The operations were at first attended with some pain ; but the arm became less sensitive after each visit, and the flexibility soon returned.

At the end of twelve months, the perfect use of the arm was restored. This case, like many others, was at first obscure. The displacements, though numerous, were very small ; and the swollen state of the arm, together with intense pain, rendered it impossible to

reduce the various bones to their proper positions in time to prevent the ossification of the synovia; and, when that had taken place, no surgeon could devote the time required to return the bones and muscular fibres to their normal places.

P A R T II.

DRESS.

MUCH has been written, and many lectures have been delivered, on the baneful effects of stays, and especially for growing girls, in consequence of which, considerable alarm has been produced in the minds of many parents. Fathers especially have concluded that all deformities of the trunk have arisen from this cause, and that the prohibition of them would secure fine and graceful figures for their daughters. With the opinion, that injurious effects have in many instances been thus produced, I fully concur, persuaded that perfect freedom of every part of the body is essential to health. But, unless the other parts of the dress are properly adapted to the purpose of being worn without stays, much greater mischief may arise from the want of such a defence against bands, strings, buttons, &c., which often produce a more unequal pressure.

A young lady has just been brought to me with an extensive lateral curve of the lumbar vertebræ, though she has never been allowed to put on stays, and though the utmost attention has also been paid

to her position. She has always enjoyed good health, and in bone and muscle she is strong. Great care has also been paid to each part of her dress; and, as her mamma had entertained a great horror of strings, she had carefully avoided them. Yet, on examining the dress throughout, I found one part fastened by a large button, which had evidently pressed on the right side of the fourth lumbar spinal joint, causing it to deviate from the line, and to be depressed. This was the starting-point of the curve.

There was also brought to me a little girl, four years of age, suffering from an angular curve of five of the lumbar vertebræ, and projecting two inches above the column. The integuments surrounding this curve had greatly thickened, and the spinal ribs were drawn from their proper position, causing on each side a deep hollow over the hips. As the disease had advanced so far, notwithstanding the early age of the patient, it must evidently have commenced in infancy. I immediately inquired, if her nurse had fastened the band of the small flannel tightly round the waist. Her mamma replied, that the monthly nurse had always done so, for the purpose of strengthening her loins. But if this lady had understood the structure of the body, she would have known that such treatment, instead of giving strength, could tend only to destroy the foundation of it, by pressing in the short ribs, transverse processes, and joints of the spine.

It is not my intention to speak of the treatment of

these cases ; I merely notice them, to show what in dress should be avoided. Many attempts have been made to improve the first dress of infants, but nothing that I have seen is sufficiently simple : in all, there are too many knots and buttons, which, when the back is in the recumbent position, may press some of the vertebræ, and flatten the joints, and thereby lay the foundation for curvature. Swaddling-clothes would probably be too loose for the temperature of this climate ; but each article of dress should be so made, that one belt on the outside of the garments would be sufficient to confine them, and that belt should be fastened in the front by a flat, soft button, and, by no means, should be tight. When children are a little older, they are made to wear drawers fastened by a large button, which has been a frequent cause of curvature. If the button is pressed against the side of the bone, the curve will be lateral ; if upon the top, it will be anterior, causing a projection above the bone, which is flattened. “ Hooks and eyes ” are also in some instances enemies to the figure. At the bottom of the frock-bodice, especially, great care is required, or the consequence may be either an inflammation of one of the joints, irritation of the whole spine, or the formation of an ulcer. These articles of dress are left too much to the nurse, who frequently feels a pride in seeing the child look small in the waist.

The shoulder-strap is another source of mischief. It prevents the arm from having that freedom which

a child requires for the proper exercise of the limbs, which, in healthy children, are always in action. In order to get release from the constraint they feel, they push up the shoulder. The following case will illustrate the above observations :—

On examining a little girl, whose left shoulder was considerably elevated, I found five of the ribs under the shoulder-blade greatly depressed. Her mamma expressed great surprise at this exhibition, because her daughter had never worn stays, and her health was exceeding good, while unequal pressure had been carefully avoided.

On a careful examination of the dress, I found she had worn a soft jean bodice, with elastic shoulder-straps; these, as the child said, had often distressed her, so that, unknown to her mamma, she had withdrawn her right arm from its confinement. The consequence was, that the loose strap, falling down and drawing the top of the bodice with it under the point of the blade-bone, had flattened the ribs on the left side; and expanding the corresponding ones on the right under the point of the blade-bone, had pushed it up, and caused a convexity of the clavicle.

Another young lady was brought to me with an anterior curve from the sixth to the tenth dorsal vertebræ. She had never worn stays, but merely a loose corded bodice. She was growing fast, and, without its being observed, the bodice and straps which confined the arms had become too short. Accordingly, when not observed, she disengaged her

arms from them, which caused the top of the bodice to become a thick ligature pressing on the spine and the ribs under the shoulder, producing a convexity of those below, and of both clavicles. Consequently, the shoulders were considerably raised, the trapezius muscle, which extends from the top of the arm to the neck, depressed, and the chest contracted. To avoid this evil, the bodice should fit at the arm-hole, and be made the same as the dress, and fasten in the front with small buttons.

The dress of children should be light and warm; for if the frame is not very strong,—which in girls it seldom is,—heavy clothing is injurious to the spine.

The dress should also be varied according to the temperature of the climate, for the purpose of keeping up the proper action of the skin. The pockets too in children's frocks require to be examined, in consequence of their great propensity to fill them with all manner of heavy things.

An interesting little girl came to me, looking full of blooming health. Her mamma had discovered a sinking of the ribs on one side of the chest, which could not be accounted for; all her dress having been made with the utmost care, to avoid unequal pressure. On examination, I discovered four of the ribs on the left side of the sternum elevated, and four on the right inverted. Finding that her dress throughout was correctly made, and that her position had been carefully watched, I caused her to be dressed before me, when the frock, on one side of the front, appeared to

be drawn down lower than the other. I then requested that the pocket might be searched, and, to the surprise and amusement of her mamma, it was found filled with pence, pebbles, and a heavy knife. The little creature most ingenuously told us she always carried as much in it.

My reason for mentioning these little things is to show, that, while to some stays may have been injurious, fewer evils, as far as my experience goes, have arisen from them than from other causes. It is well known that ladies of the eighteenth century did not suffer from spinal disease in the proportion of those of the nineteenth; which might arise, in some degree, from the system of education. But some highly educated women of that period were elegant and graceful figures; and it is well known that they generally wore stiff stays, though their make, it must be admitted, was less calculated to injure the figure than those of the present day. I would not, however, be considered as advocating the use of them, if they can be done without; and, if they cannot, they should never be worn tight, and, to prevent injury, should be fastened in front. Lacing over the spine is frequently the cause of mischief; and, where the slightest curvature exists, they never ought to be worn, for they will certainly increase the depression of the ribs.

A modern writer, in ridiculing the practice of wearing stays, has chosen a very homely, and not very correct, illustration of the human figure.

“The uppermost pair of ribs,” says he, “which lie

just at the bottom of the neck, are very short ; the next pair are rather longer ; the third longer still ; and thus they go on increasing in length to the seventh pair or last true ribs, after which the length diminishes, but without materially contracting the size of the cavity, because the false ribs only go round a part of the body. Hence, the chest has a sort of conical shape, or it may be compared to the common bee-hive, the narrow or pointed end being next the neck, and the broad end undermost. The natural form of the chest, in short, is just the reverse of the fashionable shape of the waist ; the latter is narrow below and wide above ; the former is narrow above and wide below."

Surely, when the idea struck him, he must have been gazing on a bony skeleton, uncovered with muscle. After reading his observations, I took the measure of a well-formed little girl, seven years of age, who had never worn stays, and found the circumference of the bust, just below the shoulders, one inch and a half larger than at the lower part of the waist.

POSITION.

Particular attention should be paid to the child's position during its earliest infancy ; for although there are many talented monthly nurses, there are also many destitute of experience. For the guidance, therefore, of young mothers, a few hints may be useful, since the foundation of years of misery may be laid at this period.

If the babe is made to sit up, the body is bent forward, the chest is pressed by the nurse's hand, and the back bowed, causing a depression of the inside of the spine, and an enlargement of the joints on the outside. Infants should therefore be placed in the recumbent posture until the end of the first month; and if delicate, to the end of the second; and then, should not be allowed to sit up long together.

I have several distressing cases, under treatment, of children, whose mothers trace back the origin of their sufferings and abnormal condition, to the folly of nurses, who, to show off the strength of the infant, caused it to sit upright in the arms. Great regard should also be paid to the manner of their lying in bed, in order that they may not lie either with their heads high, or without a pillow: some have erred through these extremes, either of which causes the head to fall over the top of the shoulder. If two children sleep in one bed, they should change sides every alternate night; if they sleep alone, it would be well for the mother or nurse to turn the child, the last thing before going to bed herself, and thus secure one change of position every night.

To enforce the necessity of great attention on the part of mothers, who are accustomed to allow young children to sleep upon their arms in bed, I will relate a case of a very interesting little girl, who was brought under my treatment at three years and a half old. In consequence of the delicate state of her mamma's health, she was reluctantly committed to the charge of

a nurse at night, who was supposed to understand the care of children; but from mistaken kindness, and perhaps to keep the child warm, the babe being then only six months old, she took her to her own bed, and let her sleep upon her arm, which was stout, as upon a pillow. The neck of the child resting on the arm, gradually caused an incurvation of the vertebræ of the upper part of the neck, thus destroying the centre of gravity; the head lost its support, the legs became powerless; great pain succeeded, and she could not bear the slightest movement of the body. The oscillation of an air mattress gave her agony; she was therefore placed upon a padded board, with a hollow place for the ear; and laid upon her side, as she could not bear to lie upon her back. In this state she remained thirteen months; and if she required to be turned, her papa was the only person she would allow to do it, for fear of the least jerk. When the dear child came to me, she appeared an ethereal being—all soul, or almost divested of corporeal nature, so great was the attenuation of the muscular system.

As it was supposed that the upper cervical vertebra was displaced, I felt the necessity of extreme caution in making the examination. She, however, made no resistance to its being done, and it gave me great satisfaction to find that the displacement commenced at the third, instead of the first joint; and gradually increased inwardly, at the fifth, where the concavity was deepest. There it began to rise again, to the first dorsal, which became the starting-point of a projection

outward, to the fifth dorsal vertebra, where a slight incurvation, to the lumbar vertebræ, and another projection of all the vertebræ below, had commenced. Through the goodness of God, the operations were attended with great success. At the end of some months, she could walk alone, climb a ladder, and walk by the side of her papa in the street. The manner, too, in which the children are carried in the nurse's arms, requires the vigilant eye of the mother.

If the nurse could be persuaded to change the arm on which the child is carried, it would be better for both. Some nurses keep the arm too much at an angle, resting their elbows on the side, and allowing the child to sit too far on the arm, with the back and chest contracted. The sitting posture should never be continued more than ten minutes or a quarter of an hour; nor should a child be allowed to remain long in any position.

At a more advanced age, children have a habit of standing on one leg, which expands the short ribs on one side, and depresses them on the other, and may thus lay the foundation of a lateral curvature. Great mischief is done in this way to children, by the practice of compelling them to stand, to repeat long lessons; and it would be well, if the position could be changed every five minutes, from standing to sitting, and *vice versâ*. There is another common habit, which is seldom detected, even by the most sagacious mother or governess; it is that of standing, with one leg a little in advance of the other.

I believe many cases of lateral curvature have their origin in this simple habit. In this position, the pelvis is always thrown more to one side or the other, according to the advanced leg. No one can be expected to keep the body always in a perfectly erect position all the day long; nor is it desirable, as a stiff posture is never graceful. But, apart from all secondary considerations, the strictest attention should be paid to the alternate changes of the position; for the habit of always advancing the same leg, or of leaning on the same elbow, or of throwing the same arm over the back of a chair, injures the figure.

The same effects are often produced by drawing. It may be said, that there are many who sit all day long at the easel, without sustaining any injury. Yes, many can do almost everything without injuring the back; but this will not prevent others from bringing upon themselves and friends years of anxious solicitude, if such habits are persisted in. Crossing the feet, while in a sitting posture, is also, in some instances, productive of deviation of the spine; yet the evil would seldom occur, if it were not the same foot that is habitually put over the other. Happily, the foot is generally changed; and this is the reason why many, who indulge in the ungraceful posture, do not suffer from it. Sitting in a large lounging-chair, with the body curved, is very injurious; yet a posture of constraint cannot be continually observed; the muscles must be frequently relaxed. But it should be by such changes as will not always act

upon the same set of muscles ; and it should be indulged in only for the sake of rest, or the recti muscles of the back and sternum will lose their power. For persons whose muscles of the back or chest are weak, the recumbent position is very beneficial ; but a quarter of an hour ought to be the extent of the time they should remain in it together ; and, after rising, they will find it better to engage in some kind of active exercise ; and then, after sitting in a perfectly erect posture until the back feels fatigued, to obtain a gradual change of position by the use of an inclined chair for a short time, than to throw themselves at once into a horizontal posture.

Shortsightedness is a frequent cause of excurvation of the spine, and also of high and stooping shoulders. To prevent this evil, glasses are frequently worn ; but, as the use of glasses completely destroys the beauty of the eyes, I would suggest for children a change of employment ; and that, when reading, they should accustom themselves to keep the book at as great a distance as their sight will allow, which will improve the focus of the eye ; and when alone, that they should hold their book or work in such a manner as to prevent the head from leaning forward.

EXERCISE.

In addition to this care respecting posture, I would urge the necessity of the utmost discrimination for the

regulation of exercises. When young people are strong and healthy, they are the best judges of what they can bear, and should never be pressed to exceed their strength; but the adaptation of various exercises to the constitution, as well as the time for using them, requires some knowledge of physiological principles.

A quotation, therefore, from Dr. Combe's work, on this subject, may greatly assist those who have not made it their study, as well as express very exactly the conclusions to which I have been led by my own experience:—

“The time at which exercise ought to be taken is of some consequence, in obtaining from it beneficial results. Those who are in perfect health may engage in it almost at any hour, except immediately after a full meal; but those who are not robust ought to confine their hours of exercise within narrow limits. To a person in full vigour, a good walk in the country before breakfast may be highly beneficial and exhilarating; while to an invalid, or delicate person, it will prove more detrimental than useful, and will induce a sense of weariness, which will spoil the pleasure of the whole day. Many are deceived, by the current poetical praises of the freshness of morning, and hurt themselves in summer by seeking health in untimely promenades. In order to prove beneficial, exercise must be resorted to only when the system is sufficiently vigorous to be able to meet it. This is the case, after a lapse of from two to four or five hours after a moderate meal; and, conse-

quently, the forenoon is the best time. If exercise be delayed till some degree of exhaustion, from the want of food, has occurred, it speedily dissipates instead of increasing the strength which remains, and impairs rather than promotes digestion. The result is quite natural, for exercise of every kind causes increased action and waste in the organ, and if there be not materials and vigour enough in the general system to keep up that action and supply the waste, nothing but increased debility can reasonably be expected.

“ For the same reason, exercise immediately before meals, unless of a very gentle description, is injurious, and an interval of rest ought always to intervene. Muscular action causes an afflux of blood and nervous energy to the surface and extremities, and if food be swallowed whenever the activity ceases, and before time has been allowed for a different distribution of the vital powers to take place, the stomach is taken at disadvantage, and, from want of the necessary action in its vessels and nerves, is unable to carry on digestion with success. This is very obviously the case where the exercise has been severe or protracted, and the consequence is so well known, that it is an invariable rule in the management of horses, never to feed them immediately after work, but always allow them an interval of rest, proportioned to the previous labour.

“ Even instinct would lead to this conduct, for appetite revives after repose.

“Active exercise ought to be equally avoided immediately after a heavy meal. In such circumstances, the functions of the digestive organs are in the highest state of activity, and if the muscular system be then called into considerable action, the withdrawal of the vital stimuli of the blood and nervous influence from the stomach to the extremities is sufficient almost to stop the digestive process.

“This is no supposition, but demonstrated fact; and accordingly there is a natural and marked aversion to active pursuits after a full meal. In a dog, which had hunted for an hour or two directly after eating, digestion was found, on dissection, to have scarcely begun; while in another dog, fed at the same time, and left at home, digestion was nearly completed.”

In one family the temperaments of children may be very various. This is too frequently overlooked in young children, and the consequence is, that when a little family is sent out with a nurse, if one child expresses a reluctance to walk, it receives the opprobrious appellation of an idle, obstinate, child. One cannot but pity the poor nurse, who has to carry heavy children a long distance. Yet it always delights me to see them rebel against the nurse's authority on this point. Almost all children prefer walking, if their strength is equal to it. But some young mothers err in teaching their children to walk too soon, and it is well when such little creatures are dull scholars in this part of their education. If, before they can walk, they are disposed to play the

quadruped, by employing the hands and knees, the exercise is good, and should be encouraged; but watchfulness is necessary, to prevent the foot from being turned under the body, for this is one cause of twisted ankles and bowed legs. The exercises best adapted for young children are those which spring from the freaks of their own will. Mothers and nurses frequently require instruction on the manner of teaching children to walk, and I refer with pleasure to Mr. Walker's remarks on this subject:—

“Some medical advisers have said that the exercise which children who cannot yet walk should be made to take, ought not to consist in being suspended by the armpits, to make them beat the ground with their feet. All the apparatus of leading-strings, by means of which nurses foolishly think to make them walk before the time appointed by nature, compresses the chest, lifts up the shoulder, frequently stops the circulation of the blood in the vessels about the armpits, and injures the respiration and circulation. The lateral deviation also of the knee-joints and ankle-joints may arise from the absurd eagerness of parents to make their children walk before their limbs are sufficiently strong to bear the disproportionate weight that the trunk presents at this age.

“Children's walks in the open air should be frequent rather than long, and when they return home, they should be encouraged to roll themselves about the carpet.”

Mr. Walker's exercises for young ladies combine

those which are calculated to give elegant and graceful movements with those which tend to strengthen the muscular system, if the figure is quite straight ; but if any curvature exist, some of them, and especially the sceptre exercises, might be very injurious. Many of the gymnastic exercises are also exceedingly beneficial for healthy children, but are not admissible if spinal deviation or disease has commenced ; for if the points of the short ribs have been withdrawn from their proper situation, they may be suddenly jerked up under the angle of the long ribs, and the body thereby lose its balance. I have seen great mischief arise from this cause ; indeed, many of my patients have told me that they never discovered any curvature, until they had taken lessons in gymnastic exercises. It might, however, have existed in a slight degree before, although unperceived. Dr. Combe's observations on this subject are worthy of close observation.

“ Gymnastic and calisthenic exercises have been in vogue for some years, for the purpose of promoting muscular and general growth and strength, but they are now rather sinking in public estimation, entirely, I believe, from overlooking the necessity of adapting the kind and extent of them, not only to the individual constitution, but to the natural structure of the body ; the consequence of which has been, that some of the more weakly pupils have been injured by exertions beyond their strength, and discredit has been brought on the system. It is certain, indeed, that some of the common gymnastic exercises are altogether unnatural,

and at variance with the design of the bodily organization; and the others are fit only for robust and healthy boys, and not at all for improving those who are delicately constituted, and who stand most in need of a well-planned training. It is impossible to enter minutely into this subject at present, but the best guide we can have is to follow the footsteps of nature, and before adopting any exercise, to consider whether it is in harmony with the mode of action assigned by the Creator to the parts which are to perform it. If it be so, we may proceed with perfect confidence that it will not only improve the health, but add to the freedom, elegance, precision, and strength of our movements, whereas if it be opposed to the obvious intention of the Creator, we may rest assured that no good can come from it. If, for example, we examine the various attitudes and motions of the body, which occur in fencing, dancing, swimming, shuttlecock-playing, and some of the better class of gymnastic exercises, we find that they are not less graceful and beneficial to the young who engage in them, than pleasing to those by whom they are witnessed, just because they are in perfect harmony with nature, or, in other words, with the structure and mode of actions of the joints, ligaments, and muscles by which they are executed. But it is far otherwise with some of the anomalous exercises which were at one time so fashionable, and which are not yet extinct in schools and gymnasias, and which seem to have for their chief object the conversion of future men and women into foresters, firemen, or

savages, rather than into beings who are to continue to have the use of stairs, ladders, carriages, steamboats, and the other conveniences of civilized life. It is no doubt a good thing for a boy to be able to climb up a perpendicular pole or a slippery rope, when no other means present themselves of attaining an important object at its upper end; and it is equally a good thing for a young lady to be able to sustain her weight hanging by one or both hands, when there is no possibility of resting her feet on *terra firma*; and where boys and girls are strong enough to take pleasure in such amusements, there is no great reason to hinder them, provided they are impelled to them, not by emulation or any secondary motive which may lead to over-exertion, but by the pure love of the exercise itself. In all ordinary circumstances, those only who are vigorously constituted will attempt them, and, if left to themselves, will be sure to desist before any harm can be done. But the case is entirely altered when such extraordinary evolutions are not only encouraged, but taught to all indiscriminately, whether they be strong or weak, resolute or timid. We have only to reflect for a moment on the structure of the shoulder-joint, and of the sphere of action of the muscles surrounding it, to perceive at once that the position of the one and the strain of the other, caused by the exercises alluded to, are so forced and unnatural as to exclude the possibility of the Creator having intended either to be practised except upon occasions of urgent necessity, and to discover how preposterous it

is therefore to make them a subject of general instruction. Nay, the very violence of the effort required to sustain the body, when hanging by the hands, is far beyond that moderate exertion which adds to nutrition and strength; and in delicate subjects it may even induce relaxation and stretching of the ligaments and bloodvessels, and thus, as in the case of a young man at Cambridge, lay the foundation of future and fatal disease. The same remarks apply to a common practice of making the pupils slide down an inclined plane, resting on the hands alone, by which unnatural effort the shoulders are pushed half way up the neck, and the wrists, arms, and chest, severely tried. But in these and other similar evolutions it requires only to look at the dragging and distortion they produce, and which form such a painful contrast to the ease and grace of all natural motions and attitudes, to perceive that they are *not of the order of nature*, and that neither health nor elegance can result from them."

It has been the opinion of many that the same exercises are suitable for boys and girls, but this is a great mistake, their physical strength not being equal. The fly-ropes are not a safe or proper exercise for girls, of which I had an example in a young lady, who had suffered greatly from the use of them. She could not bring her arms close to her sides, and complained of great pain under the arms. On examining her, I found the serratus-magnus muscle inflamed and considerably enlarged.

The common exercise of the swing, of the skipping-

rope, of the shuttlecock and battledore, played by two with both hands, *la grâce*, and many others of the same kind, such as children's own ingenuity will suggest, are good and safe ; but both hands should be used in all.

Riding on horseback, even on ponies, is not safe for growing girls. I have known curvatures, spinal diseases, and other deformities, produced by it. When a lady has attained her full growth, it is a natural, healthy, and, for a good horsewoman, safe exercise. When the frame is very flexible, caution is necessary in learning to ride, and for such a constitution a gentle horse is requisite. The rides of such persons should also be short, and when they return home, the recumbent position should be observed for a short time. The saddle should be constructed for sitting on either side of the horse.

Dr. Combe says " it is a most salubrious exercise, and where the lungs are weak, possesses a great advantage over walking, as it does not hurry the breathing. It calls into more equal play all the muscles of the body, and at the same time engages the mind in the management of the animal, and exhilarates by the free contact of the air, and more rapid change of scene. Even at a walking pace, a gentle but universal and constant action of the muscles is required to preserve the seat, and adapt the rider's position to the movements of the horse ; and this kind of muscular action is extremely favorable to the proper and equal circulation of the blood through the extreme vessels, and to

the prevention of its undue accumulation in the central organs. The gentleness of the action admits of its being kept up without accelerating respiration, and enables a delicate person to reap the combined advantage of the open air and proper exercise for a much longer period than could otherwise be possible."

Many of the department exercises taught in the first-class schools are exceedingly beneficial for girls, where no spinal deviation or deformity has taken place. A quotation, however, from Dr. Combe will express my entire view of the injurious effects of such exercises, where distortion exists:—

"I am aware that these exercises are said to stretch the spine, and to remedy its deformities; but it would be quite as sound logic to maintain, that because a broken leg requires to be tied up with splints and bandages, therefore the best way to strengthen a sound leg must be to bandage it also, as to infer that, because a few diseased spines require to be stretched, therefore all healthy spines must also derive benefit from the same process; although, in the latter case, it is obvious to reason that the stretching will be likelier to put the bones out of their places, than to fix them more firmly in those which they already occupy. It is not by extravagant means that a soldier-like carriage is obtained in the army; and yet, there, the uniformity of result—the erect and steady gait—is scarcely less remarkable than the discordant materials, and variety of slouchings, and awkward attitudes, out of which it is formed by perseverance in a rational system of drilling."

I would earnestly entreat all who have the responsible charge of growing children, both boys and girls, to examine their backs frequently; and if the slightest deviation is observable, to keep them from all exercises until proper advice has been obtained from some one, who thoroughly understands the nature of deformities.

I have at present under my care an interesting little girl, who, but for the vigilant eye of "mamma," would have become a great sufferer from lateral curvature. She is one of those playful children, full of frisk and fun, whom fathers, elder brothers, and uncles enjoy a romp with. In one of her playful freaks with an uncle, two of her short ribs were pushed up under the angle of the long ones, which caused an inclination to one side, thereby displacing two of the joints of the dorsal vertebræ. The child's countenance soon displayed symptoms indicative of something wrong; yet she did not complain of pain. Had her appearance of lassitude been construed into idleness, and the child urged to take exercise which was not suitable, lateral curvature would rapidly have succeeded.

In order to show the danger of too rough play with young children, I will mention the case of another young lady, where the whole trunk of the body was dreadfully distorted. She was an only daughter, and, when young, a lively, frolicsome, little creature, who always looked forward to her father's coming home with great delight, that she might entertain him with some new gesture. One evening she welcomed him with more than usual animation; this inspired the

fond father with increased emotion ; he clasped her to his arms, and lifted her up, as he said, to touch the ceiling, and returned her hastily on her feet to the floor. From that fatal moment the father's joy was turned into sorrow ; an existence of protracted misery commenced for the child, and a life of mournful anxiety was the mother's doom.

I have at this time under treatment an intelligent little boy, eight years old, who, when three and a half years, was a remarkably fine, healthy, active, boy, and gave great promise of happiness to his fond parents, if their first-born son should live. There was, however, if possible, a greater sorrow (because a more protracted one) than death in prospect for them ; evidently caused by a friend, who, with the desire of amusing the little fellow, took him by the arms and threw him twice over the shoulder, and then forcibly to the ground with a jerk. The second time this was done, he complained of great pain in the back, and nearly fainted. From that moment his strength, health, and walking powers gave way ; the slightest movement of the body was attended with excessive pain ; it was agony to him to sneeze, cough, or hiccup ; and shortly after there appeared an enlargement of the third dorsal vertebra, which was followed by a projection of six of the vertebræ below. The cervical vertebræ, that is, those of the neck, became anteriorly curved inwards, and soon became invisible by the head resting on the shoulders. Many other painful symptoms followed ; the sternum projected very extensively, the arms and hands became

attenuated, and the abdominal muscles entirely lost their power; so that, when he first came to me, the balance of the body was so lost, that he could not walk across the room without putting his hands on his knees. I have, however, the great satisfaction of witnessing constant improvement; and his parents have every reason to hope, by the great change they see in his improved health, strength, figure, and equilibrium of body, that he will, through divine goodness, be quite restored. He can now jump, run, and take long walks.

What has been said on the present subject refers exclusively to growing children, with the view of preventing distortions. Many excellent works have been written for the guidance of those who are older. For the poor, however, these remarks are useless, their avocations being of such a nature as to preclude the possibility of parents watching over the exercises of their children.

Yet where their families are well regulated, domestic exercises, such as scouring rooms, rubbing furniture, &c., are far better for promoting health than any that are artificial. It is to me a matter of regret to see, in the free schools for girls, such exercises as fly-ropes suspended from high poles. Were one part of the day devoted by them to domestic purposes, and the other to mental improvement, there would be less of that indolence too often seen in girls of the rising generation.

Walking in the open air is equally accessible to

every class, and the open air should be chosen as much as possible for every kind of exercise ; nor should it be forgotten that the hours to be employed are of more importance than many are aware of. Many other exercises might be brought forward, but, for the sake of brevity, I must content myself with simply referring my reader to the works which have already been quoted.

On the importance of strict attention to muscular exertion, Dr. Combe says—"The evils arising from deficiency of exercise to all the functions of the mind and body will now be equally evident and intelligible, for they are the converse of what we have seen to be the advantages of adequate exercise. The circulation, from want of stimulus, becomes languid, especially in the extreme vessels ; the feebleness of action occasions little waste of materials, and little demand for a new supply ; the appetite and digestion, consequently, become weak,—respiration heavy and imperfect,—and the blood so ill-conditioned that, when distributed through the body, it proves inadequate to communicate the stimulus requisite for healthy and vigorous action. The concatenation of causes and consequences, thus exhibited, cannot fail, when the principle connecting them is perceived, to interest and instruct every thinking mind."

ALIMENT.

On the subject of aliment, there are so many excellent works now in print, that it would be superfluous

and presumptuous to introduce it here, but that it belongs to the intention of this little work to warn mothers and guardians of children against everything calculated to injure health, and thereby produce spinal disease; for, although so many volumes on dietetics have been written, they remain unread by thousands; many of them not having been written for the people, and others being too expensive to be purchased by them. Examples of this fact are constantly presenting themselves. I would observe, therefore, that, for the regulation of diet, theory alone must not be confided in, strict adherence to rules having frequently been more productive of evil than of good results. Some pathological laws must of necessity be absolute, such as the prohibition to overload the stomach; the giving of food or drinks too hot, too frequent, or too stimulating; the allowing the food to be taken when the body is fatigued and over-heated, or without previous rest. But as in medicine, so in diet, that which will suit one constitution, and promote health, will in another produce disease. From early infancy all these should be carefully observed.

Some have insisted that, for infants, no other aliment should be given than what nature has provided. Lichtenstein has been quoted to enforce this law, who remarks, "that amongst the Koossas, where the mother suckles her child two years, diseases among infants are rare." "It is very rare indeed," he adds, "to hear a child cry: all my companions agree with me in this point; we never knew an infant

scream, or an older child weep.”—*Voyage in Southern Africa*.

There can be little propriety, however, in comparing the natives of South Africa with the civilized women of England; the daily avocations of the former being performed in the open air, while those of the latter are confined exclusively to the house, and connected, in most instances, with the great anxiety and fatigue of providing for the many wants of civilized life.

Where the mother is healthy and strong, no aliment equal to the natural one can be provided; but, if a babe does not thrive, there is an evident deficiency in the supply. In some instances, increased quantity of food taken by the mother feeds her own system, but not that of the child; and under such circumstances, either a nurse must be employed or another kind of food provided. In such cases, the food to be given as a substitute must be such as will suit the stomach. Goat's and ass's milk, if it can be obtained, is the lightest, and considered the most nutritive. If cow's milk is employed, it should, if possible, be drawn from one cow; if the milk be unadulterated, one half water should be mixed with it.

For some children all kinds of milk are too heavy, especially for a delicate child; then whey is an improvement on milk, and some children have grown healthy and strong upon it, when the stomach has rejected every other kind of food. Some children do not thrive on milk alone, and when this is the case, sago, arrow-root, biscuit-powder, oatmeal well boiled,

and boiled bread may be safely tried. When bread is boiled, a thick slice off the top of a loaf, crust and crum together, should be put into a quart of cold water, brought slowly to a boil, and kept boiling four hours, and then turned out into a basin; when cold it will be a stiff jelly, to which some milk may be added when used. I have found this agree with more constitutions than any other substance, but it will not agree with all.

Flour pressed closely in a dish and baked in a slow oven several hours, a tea-spoonful of it being then boiled in half-a-pint of milk, agrees well with some children if oatmeal-food be given once a day in connection with it. When they can hold a crust of bread in their hands, it does them good to allow them to suck it—by subduing thirst and preventing their requiring food too often. Sweet cakes, made with eggs, seldom suit the stomach. No quantity of food can be safely prescribed; some parents, fearing excess, have erred by not allowing them sufficient, but this is not the general error. Mr. Ward observes, “A similar error, to which the disease may be often traced, is the abuse of the mode of diet, often adopted by nurses and others; not only during the period of weaning, but for some years afterwards, of loading the stomach with an unnecessary quantity of food. The defective nutrition of the body is to be attributed no less to excess of quantity than to the deficiency of nutriment; and I would appeal to the experience of others who have had extensive opportunities of ob-

servation in the disorders of children, whether the instances of diseases arising from privation of food be not much less frequent than those occasioned by the contrary extreme ; by which the assimilatory organs are rendered incapable of connecting the superabundance into chyle proper for the nutrition of the body.” At a more advanced period of childhood and in youth, good, plain, wholesome food with air and exercise will suit most constitutions. The proportion of nutriments, produced from different kinds of animal food and vegetables, may be found in all dietetical writings, but when any kind of food positively disagrees with the stomach, young people should not be allowed to eat it. For example, a youth of delicate constitution was put under medical treatment, in consequence of extreme debility and disinclination to take any kind of common food ; the only thing he could take being eggs lightly boiled or poached, for even plain bread could not be retained on the stomach. His medical adviser recommended his confining his diet exclusively to eggs for a time, which he did six months in continuance. This succeeded in restoring him to good health. At the very time this plan of diet had been so beneficial, a lady who was under medical treatment told me she had a great desire for an egg, but was not allowed to take it because her medical adviser insisted that there was not any nutriment in eggs. This idea had been formed in consequence of eggs positively disagreeing with that gentleman—a circumstance which may serve

in some degree to account for different opinions given by medical men respecting diet. Mutton-chops are frequently recommended as the most easy of digestion, yet with many they produce considerable disturbance of the stomach.

White foods are often recommended, because they are less stimulating than others, but the want of the stimulating property renders them, to some, very difficult of digestion. Similar observations might be made respecting every kind of food and drink. For example, tea and coffee are poisonous to some and beneficial to others; chocolate and cocoa, light and nutritious to some, but heavy and unsatisfactory to others. Warm toast-water is a pleasant and wholesome drink for many, yet because of the absence of oxygen it disagrees with others; and in some instances, when drunk with food, will cause it to be returned as soon as taken. Cold spring water agrees with most persons, yet in some instances it injures the digestive powers. The temperature of the climate in which a person resides, as well as the amount of physical or mental exertion which he is in the habit of taking, is a point to be observed in the regulation of the quantity and quality of food.

The enormous quantity of stimulating animal food, such as fat and oil, required for the support of life, under the exposure to the intense cold of the polar regions, as mentioned by Franklin, Parry, and Richardson, is an appropriate example.

“The proposition will indeed be readily assented to

when the reader considers that a due supply of well-formed chyle is necessary to restore the nourishing properties of the blood ; and that if, in consequence either of insufficient food or of a weak digestion, this be rendered impossible, all the animal functions, among others the production of heat, must unavoidably be impaired. Habitual exercise in a hilly country, and the frequent ascent of acclivities, especially in pursuit of an object, increase the capacity of the chest, promote free circulation through the pulmonary vessels, and lead to the more complete oxygenation of the blood. Hence the vigorous appetite.” (Dr. Combe.)

The preceding statements have not been made with any intention of encouraging fastidiousness in healthy young people ; it would be exceedingly injurious to indulge whimsical fancies ; good air and exercise will give a relish to all wholesome food. In families and schools it would be impossible to suit the taste of each individual ; but where delicacy of constitution exists with little appetite, it is well, without appearing to observe it, to avoid providing for them those things to which they have an aversion. It tends greatly to produce a morbid sensibility of mind, to appear to notice the appetite with which the meals are taken. Many things occur to alter the desire for food : sometimes the stomach requires a little rest ; at this symptom indulgent parents sometimes take alarm, but an interval of abstinence would often set all right. If it do not, a medical friend should be consulted, as many

long illnesses, including fevers of all kinds, might be prevented by attention to early symptoms. It would greatly improve the sanitary condition of all classes of society, if medical men were engaged annually by families, whether sick or well, to visit them once a week; while, in an economical point of view, it would prove to many a considerable item in the lessening of their expenditure.

It would not, however, be desirable that rules for diet should always be observed for those who are in health. I know one family who, through the mistaken love and anxiety of the mother, were not allowed to eat anything but what was ordered by a physician, who was engaged to prescribe for each what the diet should be during the week; the consequence was, that if they deviated at any time from these rules, a fit of illness was the result.

An eminent physician belonging to the army, in describing his own state, says, "I have wandered a good deal through the world, and never followed any prescribed rule in anything; my health has been tried in all ways, and, by the aid of temperance and hard work, I have worn out two armies in two wars, and probably could wear out another before my period of old age arrive. I eat no animal food, drink no wine, or malt liquor, or spirits of any kind. I wear no flannel, and neither regard wind or rain, heat or cold, when business is in the way." Where proper exercise cannot be taken, the appetite is seldom good (indeed the system requires less), but it may be much

improved by a warm bath once a week, and by sponging the body all over every morning with cold water, and rubbing it dry with a coarse towel. This is now constantly practised by many, yet thousands never think of it.

The advantage of bathing in the sea is too well known to require recommendation, but sea-bathing should always be preceded by the warm or vapour bath.

Too much mental exertion, by causing over-excitement of the brain, may also lay the foundation of spinal disease. Nothing can be more clear than Dr. Combe's observation in reference to it: "At any time of life, excessive and continued mental exertion is hurtful; but in infancy and early youth, when the structure of the brain is still immature and delicate, permanent mischief is more easily inflicted by injudicious treatment than at any subsequent period; and in this respect the analogy is complete between the brain and the other parts of the body, as we have already seen exemplified in the injudicious effects of premature exercise of the bones and muscles. Scrofulous and rickety children are the most usual sufferers in this way. They are generally remarkable for large heads, great precocity of understanding, and small delicate bodies. But in such instances the great size of the brain and the acuteness of mind are the results of morbid growth, and even with the best management the child passes the first years of its life constantly on the brink of actual disease. Instead, however, of try-

ing to repress its mental activity, the fond parents, misled by the early promise of genius, too often excite it still further, by increasing cultivation, and the never-failing stimulus of emulation and praise ; and finding its progress for a time equal to their warmest wishes, they look forward with ecstasy to the day when its talents will break forth and shed a lustre on its name. But in exact proportion as the picture becomes brighter to their fancy, the probability of its being realized becomes less ; for the brain, worn out by premature exertion, either becomes diseased or loses its tone, leaving the mental powers slow and depressed for the remainder of life. Taking for our guide the necessities of the constitution, it will be obvious that the modes of treatment commonly resorted to ought to be reversed ; and that, instead of straining to the uttermost the already irritable powers of the precocious child, and leaving his dull competitor to ripen at leisure, a systematic attempt ought to be made, from early infancy, to rouse to action the languid faculties of the latter, while no pains ought to be spared to moderate and give tone to the activity of the former. Instead of this, however, the prematurely intelligent child is generally sent to school, and tasked with lessons at an unusually early age, while the healthy but more backward boy, who requires to be stimulated, is kept at home in idleness perhaps for two or three years longer, merely on account of his backwardness. A double error is here committed, and the consequence to the clever boy is frequently the permanent

loss, both of health and of his envied superiority of intellect. In this country children are not generally sent to school so early, but education is still too much restricted to the exclusive exercises of the mental powers, to the neglect of the physical; and, in the instance of delicate children, is pushed on too rapidly. I lately witnessed the fate of one of these early prodigies, and the circumstances were exactly such as those above described. The prematurely developed intellect was admired, and constantly stimulated by injudicious praise, and by daily exhibition to every visitor who chanced to call. Entertaining books were thrown in the way, reading by the fireside encouraged, play and exercise neglected, the diet allowed to be full and heating, and the appetite pampered with every delicacy. The results were, the speedy deterioration of a weak constitution, a high degree of nervous sensibility, and deranged digestion. In youth too much mischief is done by the long daily periods of attendance at school, and the continued application of mind which the ordinary system of education requires. The law of exercise—that long-sustained exercise exhausts the vital powers of an organ—applies, I cannot too often repeat, as well to the brain as to the muscles, and hence the necessity of varying the occupation of the young, and allowing frequent intervals of active exercise in the open air, instead of enforcing the continued confinement now so common. This exclusive attention to mental culture fails, as might be expected, even in its essential object; for experience shows that

with a rational distribution of employment and exercise, a child will make greater progress than in double the time employed in continued mental exertion. If the human being were made up of nothing but a brain and nervous system, it would be very well to content ourselves with sedentary pursuits, and to confine ourselves entirely to the mind. But when observation tells us that we have numerous other important organs of motion, sanguification, digestion, circulation, and nutrition, all demanding exercise in the open air, as essential both to their own health and to that of the nervous system, it is worse than folly to shut our eyes to the truth, and to act as if we could by denying it alter the constitution of nature, and thereby escape the consequences of our misconduct.

“Dr. Bringham remarks, that it is ignorance in parents which leads to the too early and excessive cultivation of the minds of children, especially those who are precocious and delicate; but from the examples which he gives, and the general bearing of his admonitions, the error of commencing systematic education too soon, and stimulating the infant mind too highly, seems to be decidedly more prevalent in the United States than in this country.”

What has been said on the subject of dress, exercise, diet, and mental exertion, are merely suggestions thrown out with a view of leading the minds of mothers, and those who have the care and responsibility of children, to exert their own ingenuity, in carrying out a system of training the human frame for physical

and mental usefulness. And the mainspring for such an object is the study of the structure of the body. Some ladies may be startled at this, considering such a science to belong exclusively to the faculty; but if the study of botany and geology is worthy of the attention of women, it is of infinitely more importance to know the construction of the beautiful mechanism of the bodies of our offspring. The American ladies have taken the lead of us, by making it a prominent part of their education. Dr. Combe, in the preface of his excellent work on the subject, insists upon the necessity of it; and, numerous as our quotations have already been, a few extracts shall be given, with the view of bringing it before the attention of those who have not seen his work :—

“The little regard which has hitherto been paid to the laws of the human constitution, as the true basis on which our attempts to improve the condition of man ought to rest, will be obvious from the fact, that notwithstanding the direct uses to which a knowledge of the conditions which regulate the healthy action of the bodily organs may be applied in the prevention, detection, and treatment of disease, there is scarcely a medical school in this country in which any special provision is made for teaching it, the pupil being left to elaborate it for himself from amidst information communicated to him for other purposes. In my own instance, it was only when entering upon practice that I had first occasion to feel and to observe the evils arising from the ignorance which prevails in society in

regard to it. Impressed afterwards more deeply than ever with the interest and utility of the study, I contributed two or three articles on the subject to one of the periodical journals, and resolved to make them the basis, at some future time, of a more detailed and connected exposition. This I have now attempted,—not, I need scarcely add, with the view of superseding the physician, by making every man his own doctor, or of recommending the general perusal of professional treatises, for both practices induce many more ailments than they cure ; but simply with the hope that the method which I have followed of connecting physiological details with practical applications may be found useful and interesting to both the student and general reader.

“ He who is instructed in and familiar with grammar and orthography writes and spells so easily and accurately, as scarcely to be conscious of attending to the rules by which he is guided ; while he, on the contrary, who is not instructed in either, and knows not how to arrange his sentences, toils at the task, and sighs at every line. The same principle holds in regard to health. He who is acquainted with the general constitution of the human body, and with the laws which regulate his action, sees at once his true position, when exposed to the causes of disease. The obvious and peculiar advantages of this kind of knowledge are, that it would enable its possessor to perceive why certain circumstances are beneficial or injurious. There is a physiology of the mind as well as of the body ; both

are so intimately united, that neither can be well understood without the study of the other; and the physiology of man comprehends both. Were even what is already known of this science, and which might be easily communicated, made a part of general education, how many evils would be avoided—how much light would be let in upon the understanding—and how many aids would be afforded to the acquisition of a sound body and vigorous mind—prerequisites more important than are commonly supposed to the attainment of wisdom and the practice of virtue.”

It may by some be considered an argument against the necessity of making physiology a study, and of attending to its laws, that among the poor, where but little attention can be paid to their offspring, fewer cases of spinal curvatures occur than among the rich. It is true that the children of the poor whose lives extend beyond infancy are healthy and robust, because delicate children, through want of proper attention, seldom survive the diseases attendant on dentition and other infantine complaints; but if they do survive that period, many are subjects of frightful distortion.

Even during the time that the preceding remarks have been committed to paper, various cases have presented themselves to show the importance of urging mothers to vigilant watchfulness—to detect the first appearance of disease, or the slightest deviation of the spine. It is incalculable how much misery may be involved in the neglect of this imperative duty. Perhaps few enter sufficiently into the feelings of those

who spend years of suffering, not only from pain of body, but from mental distress through blighted prospects ; in some instances, greatly augmented by the reflection, that their parents evince a reluctance to introduce them into company, and do not feel the same pleasure in walking out with them as, with those whom Nature has more highly favoured. Some tender, kind-hearted, parents may doubt the possibility of this and consider it a mere suspicion, but frequent communications of this nature have been made to me.

Another source of misery, connected with deformities in children, is the suspicion sometimes produced in the minds of parents towards each other ; who, when spinal disease appears, are prone to think it hereditary, and to fancy the possibility of something having been concealed by their ancestors, on one side or the other ; and not unfrequently have these suspicions been confirmed by the opinion, sometimes given by medical men, that all spinal diseases originate in serofulous constitutions. In some instances, however, this is found to be a fatal error, not only on account of the distress occasioned in the minds of parents, but through the serious consequences which follow a wrong treatment of the disease.

A case now under my care confirms this statement. A little boy, three years of age, had twice fallen from the bed ; nothing, however, in the appearance of the child excited any alarm, until several months after, when there appeared a projection including four of

the dorsal vertebræ ; eight below were inverted ; the cervical or neck joints were also inverted ; the clavicles or collar-bones were depressed ; and the ribs, from the tops of the arms to the breast-bone, were also depressed, presenting the appearance of the breast of a fowl, when the merry-thought is removed. Four of the ribs below were thrown out on one side, and the abdomen was greatly extended. When he stands, the legs appear bowed ; the tops of the arms are thrown forwards, and the elbows angled at the back like the wings of a bird.

He had been under medical treatment previous to his coming to me, and from his emaciated appearance was treated for disease of the spine, by the application of blisters to the back and chest, and with the usual medicines given in such cases.

Through this treatment, his difficulty of breathing and debility increased. The appearance of the child might easily deceive any one who had not made deformities of the body a practical study.

The child has now been under my care a fortnight ; the usual treatment is being carried out, and already there are evident marks of improvement.

This is one case out of thousands, which, if traced to their commencement, would be found to originate from inattention, unequal pressure by dress, improper position, over-mental exertion, want of muscular exercise, too much physical exertion, or from accidents.

Mr. Ward observes :—" Distortion of the spine,

arising from muscular debility, may be distinguished from disease of its bony structure, not only from its mode of termination, but by an attention to the general history of the complaint."

In closing, therefore, these practical hints, I would seriously urge upon the reader's attention the importance of remembering that some constitutions are predisposed to one disease much more than to another, and that a peculiar symptom, whensoever it appears, should receive immediate care.

THE END.

TESTIMONIALS.

Letter from DR. CONQUEST (by permission).

“Finsbury Square, London, June 11th, 1851.

“My dear Sir,—I have now carefully read over Mrs. Godfrey’s publication, and cordially approve of the principles and practice it so simply, yet most forcibly recommends. It will give me great pleasure, should it be in my power, to place any patient under her judicious management.—Yours, faithfully, J. T. CONQUEST.”

Extract from the LONDON MEDICAL GAZETTE.

September 26th, 1851.

“The claims to attention possessed by Mrs. Godfrey, as a female writer on a medical subject, are, that her husband is a surgeon of long experience and practice, that she has been in the habit of assisting him at his examination of female patients, who consulted him for affections of the spine, &c. And that in this way her attention had been particularly directed to the class of cases to which she has since entirely devoted herself. In order to qualify herself for the task which she had undertaken, Mrs. Godfrey appears to have studied anatomy to a certain extent, and thus, with the aid of her husband’s instructions, has acquired sufficient information and experience on the treatment of deformities of the spine, &c., to entitle her work to a respectful reception at the hands of medical men. Besides these extensive claims, we think that the work has intrinsic merits, which will gain for it more than an ephemeral notice, or mere hasty perusal.

“Mrs. Godfrey’s principle is, to dismiss all instruments and mechanical contrivances which restrain the movements of the body, and, by her own peculiar treatment, the displaced or distorted limbs and bones are gradually restored to their natural state. The only machinery used by

Mrs. Godfrey, consists of weights attached to cords, to be drawn up and down, and a gymnastic ladder. The authoress repudiates the method of cutting down upon the muscles as strongly as she does the system of artificial supports and machinery for pressure, extension, &c., &c. Equally emphatically, and with much justice, does Mrs. Godfrey inveigh against the constant recumbent posture.

"The observations on the use of stays are worthy of notice. The authoress follows a judicious middle course, not doubting or denying the injurious consequences that have resulted from their misuse, but pointing out, also, that equal or greater injury may be produced by bands, strings, buttons, &c., unless very carefully adjusted. The authoress relates several instances of curvature produced by the unequal pressure of the shoulder-straps of girls' dresses. On the whole, Mrs. Godfrey is of opinion that less harm has been done by stays than by some other articles of dress.

"Mrs. Godfrey, in like manner, shows very great judgment in her observations upon the effect of posture, as predisposing children to deformity. We can also confidently commend this lady's advice with regard to children's exercises and sports. On this point there are some remarks in the work which fairly represent the style of the authoress, which is, throughout, easy, without being diffuse or light. Diet, clothing, general regimen, education, mental exertion, &c., with reference to children, are all, in turn, treated by the authoress in this work. We are usually most jealous in guarding the non-professional public against pseudo-medical works written by non-professional persons. The work, however, which we here bring under the notice of our reader, forms a striking exception, if indeed it can be altogether regarded as a non-professional work. It is full of good sense, and of the results of experience improved by good powers of observation, and corrected by study and opportunities which the authoress has turned to advantage."

November 4th, 1851.

"As a production of a townswoman, the work might justly lay claim to a favorable consideration, but it has merits of an intrinsic character, which renders it independent of any favour on that score. The authoress is evidently a woman of superior abilities, influenced by an ardent desire to alleviate the distresses of her fellow-creatures; and, in seeking for means to alleviate the very common and very distressing malady to which her attention has been specially directed, she appears to

have spared no pains in acquiring the necessary knowledge and facilities for the proper and effectual treatment of it. She fully details the methods to which she has had recourse, and speaks with confidence as to their beneficial operation in a great variety of cases. A perusal of her work may be the means of checking many an injurious habit, or suggesting the application of a timely remedy."—*Liverpool Courier*.

"Mrs. Godfrey has had great experience in the treatment of spinal and other deformities, and has had an amount of success corresponding with her large practice. Her treatise is one of great value to medical men, as expounding the mode of treatment which she found to produce the most beneficial results, and as suggesting a theory, reasonable and well supported, which, if generally admitted and adopted, would explain the causes of spinal deformities, and, consequently, tend very much to their diminution and cure. The treatise is of still greater importance to parents and young persons themselves, than to surgical professors, for it informs them how these curvatures of the spine, the chest, and the limbs, so numerous and distressing, may be prevented by a due attention to exercise, mental exertion, and dress. On these points Mrs. Godfrey's work is peculiarly well worth consulting, and she has taken care to fortify the rules she recommends, by the opinions of some of the most eminent doctors of the day."—*Liverpool Standard*.

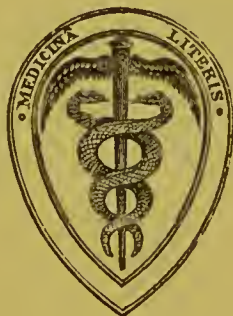
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